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Poetry.

FARMER'S HYMN.

God of the hills and verdant plains,
I bless thy ruling hand;
For drifting snows and gentle rains
Are sent by thy command.

The opening spring is decked by thee
With each delightful flower,
And every leaf and bud I see
Bear impress of thy power.

The ripening summer's burning sun,
The winter's piercing cold,
The changing seasons, as they run,
Thy wisdom, Lord, unfold.

The joy that centers in my cot,
No less thy wisdom owns;—
With rural happiness my lot,
I cannot envy thrones.

Love dwells within my peaceful breast
At every morning's dawn;
And when the sun sinks in the west,
My cares are all withdrawn.

Beside the hill, the purling brook.
Glad nature's fond retreat,
With gratitude to thee I look,
And songs of joy repeat.

For lot so blest, my voice I raise,
Almighty God, to thee:—
Although thou need'st not angels praise,
Much less such praise from me.

The Widow's Charge at her Daughter's Bridal.

BY MRS. SIGOURNEY.

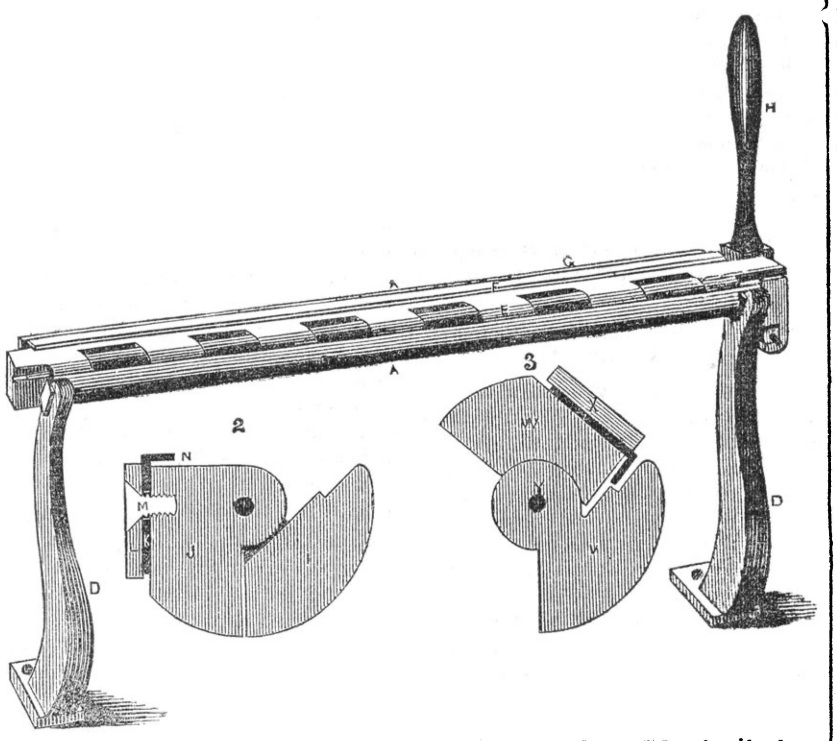
Deal gently, thou, whose hand has won
The young bird from the nest away,
Where careless 'neath a vernal sun,
She gayly caroll'd day by day;
The haunt is lone, the heart must grieve,
From whence her timid wing doth soar,
They pensive list, at hush of eve,
Yet hear her gushing song no more.

Deal gently with her: thou art dear
Beyond what vestal lips have told,
And like a lamb, from fountain clear,
She turns confiding to the fold;
She round thy sweet, domestic bower
The wreaths of changeless love shall twine,
Watch for thy step at vesper hour,
And blend her holiest prayer with thine.

Deal gently thou, when far away
Mid stranger scenes her foot shall rove,
Nor let thy tender cares decay,
The soul of woman lives in love;
And shouldst thou wondering, mark a tear,
Unconscious from her eyelid break,
Be pitiful, and soothe the fear,
That man's strong heart can ne'er partake.

A mother yields her gem to thee,
On thy true breast to sparkle rare;
She places 'neath thy household tree
The idol of her fondest care;
And by thy trust to be forgiven,
When judgment wakes in terror wild,
By all thy treasured hopes of Heaven,
Deal gently with the widow's child.

MACHINE FOR MAKING TUMBLER STOVE PIPE.



This is a very useful and ingenious machine, invented by Mr. J. J. Wright, of Rochester, N. Y., and patented in the month of March last. These machines are now manufactured by that excellent company, Roys & Wilcox, of the Matabessett Works, Berlin, Conn., where all orders are promptly supplied with the best materials. They will no doubt soon have an extensive sale for this valuable machine, which should be in every tinsmith's shop.

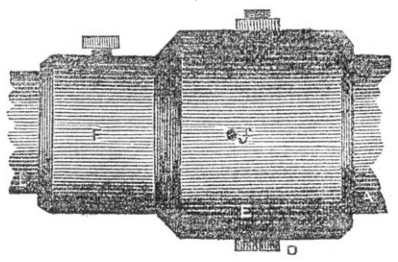
Fig. 1 is a perspective view, showing the machine open and ready for use Figures 2 and 3 are transverse sections, showing the inside parts. D D are the legs fastened to the bench in any known way. E is a tumbler; it is fastened to the bed piece, C, and forms a hinge—the tumbler, E, working on the said hinge, while the bed piece, C, is stationary; F is a folding slide; it is connected to the lever, H, by means of a pin, which works in a slot cut in the side of the said lever next to the tumbler. G is the top edge of a cap plate, which is fastened to the tumbler, E, by screws, which pass through the folding slide, F. In this slide there is a slot which works on the screws. By moving the lever, H, in the direction of A, the folding slide, F, is brought down into the tumbler, E, and by moving the lever back, the slide is raised, as now represented. In order to turn a lock on a sheet of metal of any kind, the edge of the sheet is pushed in between the tumbler, E, and the folding slide, B. The lever, H, is then moved in the direction spoker of, which brings the folding slide down on to the edge of the sheet, and holds it fast, then by drawing the lever forward and down, the folding slide is brought over so as to come into contact with the bed piece, C, and the lock is then turned. By throwing the lever back, the sheet with the lock formed on it is taken out, and so on.

In fig. 2, I is a section of the bed plate; J, that of the tumbler; K the folding slide and the cap plate; M, one of the screws which pass through the cap plate and the folding slide in the tumbler, J; the sheet of iron is placed between the tumbler, I, and the folding slide, K at N. The tumbler, J, is then brought over, so that the folding slide comes in contact with the bed piece, I, as represented in fig. 3. Fig. 3 is a transverse section through the machine, when the cap plate is in its place. V is the bed piece section; W, the tumbler; X, the cap plate; Y, the pin on which the tumbler works; Z is the folding slide.

One great advantage in this machine is, that after the pipe has been formed by rollers, the lock can be turned completely ready for use. In the common way of making stove pipe the lock is turned on the edge of the sheet of iron when the sheet is flat, hence a great difficulty arises in forming the pipe by rollers, or otherwise, without injuring the lock, for the rollers will not work truly up to within about half an inch, or more, from the lock, and for this reason the operator has to finish the pipe with a mallett, on a stake, after the pipe is put together. This difficulty is completely obviated by this excellent invention, because the pipe is formed with rollers before the lock is turned.

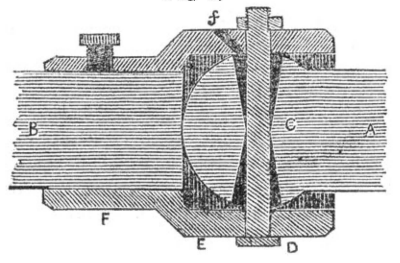
New Universal Joint.

FIG. 1.



This is a very neat and unique universal joint, invented by Mr. A. P. Gross, of St. Louis, Mo. It is now in general use in that part of our country. It is used for any shaft that is desired to be driven on any angle. It is strong and operates well. It is composed of a sphere, or ball, C, on the end of the shaft, A, working in a hemispherical box, E, which is secured on the shaft, B, by the screw bolt,

FIG 2.



through F. The ball, C, has a double angular opening passing through the centre of it, as represented in the vertical longitudinal section, Fig. 2. Through this opening passes the bolt or stationary axis, D, which is secured on to the box, E, by a nut, as represented in fig. 1. The play of the universal joint, will therefore at once be perceived by the opening in the ball, C, allowing the shaft, A, to play on D, according to the angle of the said opening. By taking out the bolt, D, and pouring a little oil through the duct opening, *f*, the motion of the shaft, A, may be suspended, and thus whatever it may be attached to in a mill, may be brought to, and allowed to rest at pleasure. This makes it exceedingly convenient. Mr. Gross is an ingenious man, and is the author of more than one good invention.

RAILROAD NEWS.

The construction of the Great Rail Road from St. Petersburg to Moscow, Russia, has been carried on entirely by American Mechanics, and the Chief Engineer, Major Whistler was a citizen of the United States. His death, a few months ago, has caused the necessity for a new chief, and it is stated that the office has been tendered to Major T. S. Brown, of the New York and Erie railroad. the proffer comes through the Russian Minister, and has been accepted under certain conditions. The road is 420 miles long, and it is estimated it will cost $40,000,000. All the appointments are of the most complete and durable character, and it is expected that the distance will be regularly travelled in 12 hours. The road is graded all the way, 400 feet wide, and on this a double five feet track is laid. Concerning the *personnel* of the road, a writer in the Railroad Journal says:

An American house—Messrs. Harrison, Winnans and Eastwick, of Baltimore—has the contract for the equipment of this road, and they have already supplied it with 162 locomotive engines, averaging 25 tons weight, 72 passenger cars, 2,580 freight cars, two Imperial saloon carriages, capable each of carrying the Imperial Court of Russia.

There is considerable enthusiasm existing in the northern part of this state, to form a ship canal from the Hudson to Lake Champlain. It can be done, if our people put their shoulders to the wheel, in all earnestness.

A Convention of persons opposed to the privileges enjoyed at present by the Camden and Amboy Railroad and Delaware and Raritan Canal Companies, was to be held in Trenton, on the 5th inst.

American and English Railroad Iron.

A Staffordshire Ironmaster, in a long communication to the London Mining Journal brings to light the fact that English iron rails, as at present manufactured, are of the very worst stuff. He says the very worst iron that can be made or purchased is now used in the manufacture of railway bars. Hot-blast cinder iron, made into white pigs, is now sought after to be used for this purpose, and the price of railway bars, instead of being 10s. or 20s. per ton more than good best iron, is reduced to as low, and, in some instances, lower, than the most common bar-iron that can be found, either in Staffordshire or Wales—complete trash; and yet some of the purchasers will have you believe they get the best iron, while the fact is, rails cannot be made of good best iron at less than from two to three pounds per ton, above what they are now selling at. It reminds me of orders being sent for gold watch seals, tying the maker to about 9d. or 1s. each. This is just now the case with rails; and the consequence is, they are no sooner laid down than in a few weeks or months, they begin to laminate, split, and crush, and are obliged to be taken up and replaced, as they are found to give way; and thus the railway is continually endangering the lives of the passengers, besides being a serious expense to the company. Many are now putting on the round topped rail, which puts off the evil day a little; but this destroys the tyres as fast again, and thus increases the loss.

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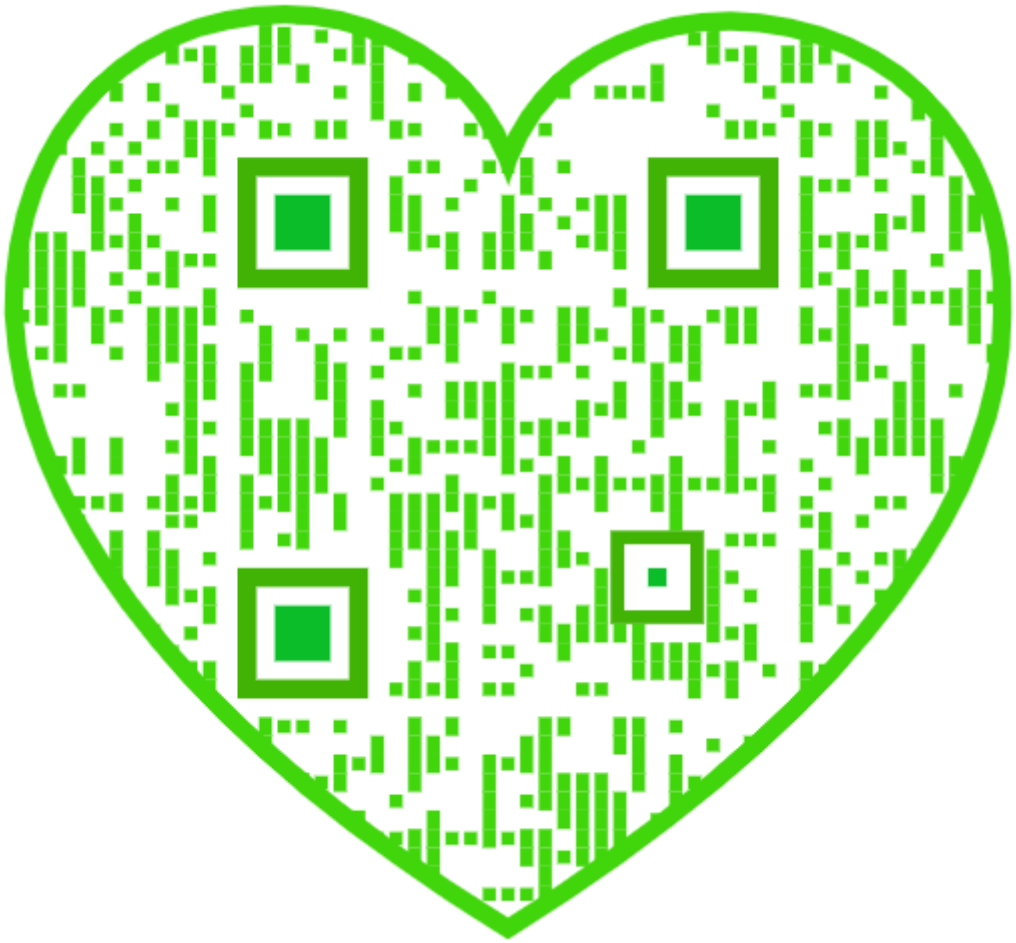

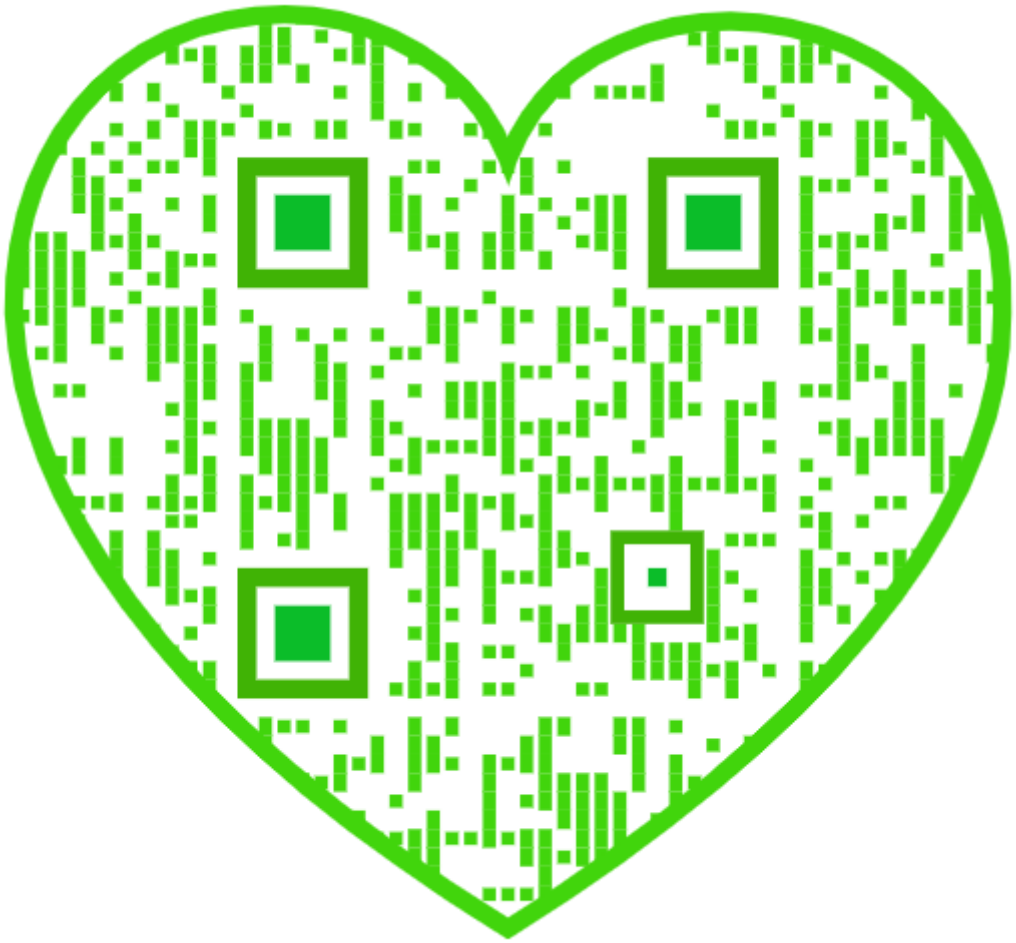

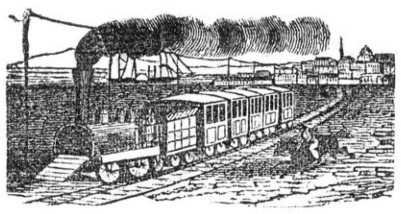

Singular Fall of Ice.

A curious phenomenon, says one of our foreign exchanges, recently took place at the farm of Balvulich, Scotland. Immediately after one of the loudest peals of thunder ever heard there, a large and irregular shaped mass of ice, reckoned to be nearly twenty feet in circumference, and a proportionate thickness, fell near the farm-house. It had a beautiful crystalline appearance, being nearly all quite transparent, if we except a small portion of it which consisted of hailstones of uncommon size, fixed together. It was principally composed of small squares—diamond-shaped—of from one to three inches in size, all firmly congealed together. The weight of this large piece of ice could not be ascertained; but it is a most fortunate circumstance that it did not fall on Mr. Moffat's house, or it would have crushed it, and undoubtedly have caused the death of some of the inmates. No appearance whatever of either hail or snow was discernable in the surrounding district.

The Rice Crops.

The Savannah Georgian has the following informatiion in relation to the rice crops of that State:

"For the last few days the weather has been most delightful for the season. The rains of last week have been succeeded by dry harvesting weather. The health of the city, as well as on the rice plantations, is remarkably good. The diarrhœe, or *cholarine*, which existed for some time upon the plantation, has disappeared entirely.

"The planters are now preparing to harvest their rice; two or three commenced day before yesterday. We are informed that the grain will generally be ready during the remainder of the present month. At the south, on the Ogeechee, Altamaha, and Satilla rivers, planters commenced harvesting a few days ago. The health in those sections is as good as it is upon the Savannah river.

New Jersey Zinc Mine.

The ore procured by the Sussex Company from the zinc mine recently opened at Minehill, N. J., is said to be uncommonly rich, containing about 80 per cent of red oxide of zinc and fracklinite, in nearly equal proportions. The zinc is very pure, and strikingly superior to the imported article, being free from sulphur, arsenic, and other impurities. Reduced to an oxide, it is a fine white paint. The iron is remarkable for its fineness and tenacity. The ore is supposed to be inexhaustible.

Great Reptiles.

Two large Boa Constrictors have arrived in this City, from the River Amazon, in South America; the larger of ahe two, a beautiful Boa Constrictor, measures full 20 feet in length, we are told; and the other, an Anaconda, about 15 feet. The whole province of Para, Brazil, where these huge reptiles were captured, is covered with woods and almost impenetrable jungles, which form a shelter for thousands of gigantic serpents. The two just imported are stated to be the largest ever brought from South America.

Burlington and Boston Railroad.

The Burlington and Boston Railway will be opened this week to Middlebury, from Lake Champlain, and in January, the whole road will be completed and the cars running. The Whitehall and Rutland Railroad, now under contract, will connect with this work at Rutland, and form a continuous railroad communication from East-Albany to Burlington.

The Lost Navigator.

Lady Franklin has purchased one-fourth of the Hull whaling ship Abram, and paid the additional risks for insurance, with a view to her exploring Jones' Sound and Smith's Sounding, and search for Sir John. She has also offered a reward of £500 in case of success.

A Runaway Husband.

A young lady of respectable family, living near Schenectady, N Y, recently got married to a man who pretended to be a Lieut. in the U. S. Navy. When he was taking his bride home, he run away and left her at Albany, because he had no home, we suppose to take her to. It has since turned out that instead of being a Lieut. in the U. S. Navy, he has recently belonged to some flying circus. We do not know whether to extend pity, or not to the more deceived wife. We are afraid that too many daughters receive an education the very reverse of what they should get. They are taught to seek happiness in gewgaws, lace, dash, idleness, and show. They too often choose men who carry their brains on their back, and who after they get married drop them down in the heels of their boots. Why did not the disappointed make diligent inquiry about her intended, and take more time to find out who he was? If she had done so, she would not now be repenting at leisure for her hasty mariage. Old Mass. has the best system yet, to

"Cry them three times in the Church;
Before they wedded be."

Business in New York.

Business in this city has taken a decidedly favorable change. The machine shops are beginning to spur up, and no doubt but a good fall business will follow in the wake of a summer of unusual depression in every branch of business. The cholera has, no doubt, been the principal cause of it. The Novelty Works, the Allaire and Secor's are now very busy. Two engines are building at Secor's for steamboats to run on the Oneida Lake, one of the most beautitul sheets of water in the world.

Propellers.

A writer in the U. S. Gazette, says, that—The steamship Columbus left Philadelphia August 1st, for Charleston, making two round trips, arriving in out city on Saturday afternoon last. She burnt but one hundred and twelve tons of coal during the four passages carrying large and heavy cargoes each way. To compare the principle of propelling ocean ships with the propeller, the owners of the Columbus challenge any side wheel ship afloat to show any equal performance at the same expense, comparing tonnage carried, and speed.

Unwashed French Ladies.

An American lady writing from Paris, says that she has lately discovered the secret of the many beautiful and brilliant complexions seen in that city. It seems that water is considered by the French ladies as the great spoiler of the skin, so that unless some untoward circumstance really soils their faces, they are not touched with water from one week's end to another. The owners content themselves with gentle rubbing with a dry, coarse towel, and exclude water almost entirely from their toilette tables.

Diving Bell Company.

A company has been formed in this city, with a capital of $100,000, in shares of $100, for the purpose of conducting mining operations by means of Worster's Diving Bell, which is supposed to afford peculiar facilities for working the beds of rivers and deep water.

[See Engraving of the apparatus in Sci. Am. Vol. 4, No. 40.

Arkansas Marble.

The Little Rock (Ark.) Democrat says that fine black marble has been discovered near the head of steamboat navigation on White river. It appears on the bank on either side of the stream.

A Large Watermelon.

The Alabama Argus has been shown a watermelon of uncommon size, from the plantation of a friend, which weighed seventy-three pounds and a quarter, and measured eighteen feet six inches in circumference, and twelve feet nine inches in diameter.

M. Babinet says, that rain is caused by a mass of damp air rising into an atmosphere of less pressure than at the place from whence the damp air had risen, by first dilating, then cooling and forming into a liquid.

A man who had lived much in society, said that his acquaintances would fill a cathedral, but that a pulpit would hold all his friends.

Hazlitt's Advice to his Son.

Do not begin to quarrel with the world too soon, for bad as it may be, it is the best we have to live in here. If railing would have made it better, it would have been reformed long ago; but as this is not to be hoped for at present, the best way to slide through it is as contentedly and innocently as we may. The worst fault it has is want of charity; and calling knave or fool at every turn will not cure this failing. Consider as a matter of vanity, that if their were not so many knaves and fools as we find, the wise and honest would not be those rare shining characters that they are allowed to be; and, as a matter of philosophy, that if the world be really incorrigible in this respect, it is a reflection to make one sad, and not angry. We may laugh or weep at the madness of mankind, we have no right to vilify them for our own sake or theirs. Misanthropy is not the disgust of the mind at human nature, but with itself; for it is laying its own exaggerated vices as foul blots at the door of others! Do not mistake what I have here said. I would not have you, when you grow up, adopt the low and sordid fashion of palliating existing abuses, of putting the best face upon the worst things. I only mean that indiscriminate, unqualified satire can do little good; and those who indulge in the most revolting speculations of human nature, do not themselves always set the fairest examples, or strive to prevent its lower degradation.

Experiments on Gunpowder.

Maj. Mordecai, of the Ordnance Department, has published his second report of experiments upon gunpowder, made at the Washington Arsenal. The Intelligencer says: This Report contains a synopsis of his experiments with the ballistic pendulum, since the year 1844, and will be found, by those who take an interest in such matters, to contain much valuable informtion. The object which the Major has had in view, have been first, to ascertain the smallest caliber of gun which may be relied on to give satisfactory results, in using the ballistic pendulum as an instrument of using gunpowder; secondly, to ascertain the initial velocities of balls fired from field guns and howitzers with various charges; thirdly, to ascertained the charge of maximum effect, and also the relative force of a given charge, in guns of various lengths of bore; fourthly, to extend the experiments on the windage of balls, in order further to develop the law of variation of the force of charge with various windages; fifthly, to extend the experiments on balls of various weights, in order to compare the force of the charge, with different weights of ball, in its effect on the gun, as well as on the shot. The report also contains a record of experiments on the Explosive Cotton.

Iron Storehouses for California.

Messrs. Reany, Neafie & Co., of Phila. says the Ledger, are now engaged in preparing an iron warehouse for the Messrs. Aspinwall, which will be shipped on board the ship Stephen Baldwin, now loading by that firm for California. The dimensions of the store will be 50 feet long, 40 wide, and two and a half stories, or 45 feet high at the apex of the roof. There are to be four doors, one on each side and end, and 36 windows. The iron plates to form the sides are to be pierced for the rivets, fitted, marked, and numbered, so that on arriving out the whole can be put up in a very short space of time. At each corner there are to be cast iron columns, of the proper patterns, and studs of the same material are to be placed on either side of the windows and doors of both stories, to which the iron plates will be riveted. There are also to be cast iron columns, running along the centre of both stories. The flooring will be of wood, the lumber for which will be shipped along with the store. The roof will be formed of galvanized iron, the sheets of which will be fitted, so that there will be little trouble in doing this portion of the work on arriving out. The doors and windows and the frames are all to be made of cast iron. The whole weight of the edifice, it is estimated, will not be more than 30,000 pounds.

He that would rise to distinction by false means, never can feel the sweets of conscience applause.

Graefenburg Dysentery Syrup.

We have seldom, if ever, during the publication of the Scientific American, made attempts to puff up the thousand and one nostrums that are presented to the public in the shape of cure-all quack medicines. The reasons are, that having no confidence in them ourselves, we did not feel at liberty to recommend our friends to wash their systems out with the filthy compounds. During the prevalence of the cholera in our city, when almost every person was more or less afflicted with symptoms approaching cholera—ourselves, with many others, felt the necessity of having some preventative to use in case of a sudden attack. From the statements made by several of our friends, we placed our reliance upon the Graefenburg Dysentery Syrup, and had occasion to try it several times among our employees, with the most gratifying success. This warrants us in expressing our firm conviction that this Syrup stands at the head of any preparation within our knowledge for bowel complaints. We are glad to learn that this company (which is composed of excellent men) are highly successful in their efforts to furnish anti-humbug medicines. We can only speak in favor of the Dysentery Syrup, without asking the necessity of using their Vegetable Pills, Green Mountain Ointment, Eye Lotion, Consumption Balm, &c.

Manufactures of Connecticut.

Connecticut, though but the twenty-eighth in size of the States of the Union, holds probably about the sixth place in rank as to the amount of manufacturing carried on within its limits. In that State late returns show the following results: There are 137 cotton mills, consuming yearly 13,319,170 pounds or cotton, and manufacturing 33,431,985 yards of cloth, 1,872,863 pounds of yarn, 70,000 dozen spools of thread, 608,547 pounds of batting, 30,000 dozen sheets of pelisse wadding, 47,817 yards of cotton flannel. The amount of capital invested is $3,312,450. There are 2,312 males, and 3,050 females employed in this business.

Early Marriages.

Two correspondents have been supplying the National Intelligencer with their ideas about early marriages. One advocates early marriages, the other proves to a demonstration, (in his own way,) that all the great geniuses that have ever lived, are living or intend to live, have been, are, and must be, the youngest children. In respect to such erudition, Dominie Sampson would say, "prodigious."

Nine married ladies beat nine single ones at a game of wicket in England recently. The gamesters were all dressed in white—the married party with blue trimmings and the others with pink.

There is a negress on the estate of J. C. Calhoun, aged 112 years. She was brought from Africa, and has been in his family for a century. She has 63 descendents, all living on the same plantation.

Among the improvement at Niagara Falls, this seson, is the erection of a tower at the chasm about four miles from the village of the Falls. Upon its top is an observatory, and the panoramic view is said to be very extensive and magnificent.

The baptismal admonition of the Hindoos is as impressive on the by-standers as it is beautiful:—Little babe, thou enterest the world weeping, while all around you smile; contrive so to live that you may depart in smiles whilst all around you weep.

Philosophical happiness is to want little and to enjoy much: vulgar happiness is want much and enjoy little.

It is in vain to regret a misfortune when it is past retrieving, but few have philosophy or strength enough to practise it.

One line, and one fraught with instruction, includes the secret of final success—be prudent, be patient, and be persevering,

Go to strangers for charity, acquaintances advice, and to relatives for nothing—and you will always have a supply.

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American Scientific Association.

This highly respectable association closed its annual session which lasted from the 14th to the 21st ult. A semi-annual meeting is to be held in the City of Charleston, S. C. next March. The present meeting was held at old Harvard University, Cambridge, Mass. Proff. Henry of Washington, was in the chair, and the attendance of famous savans, was numerous. Among the many subjects discussed, we have endeavored to collect a brief and interesting synopsis.

AN AMERICAN PRIME MERIDIAN.

Lieut. Davis, U. S. N. presented an able report on the meridian, suggesting the benefits that would accrue to civilized nations, if a general meridian was adopted by common consent. The man of business he said, the general student, and above all, the navigator, would profit by this rule; and the man of science would also find it beneficial in removing the necessity for those allowances and calculations occasioned by the variety of meridians, and with them, a constant source of error Hitherto we have used the English Meridian of Greenwich; all our geographical positions and territorial limits are fixed according to that; our astronomical calculations are based upon it; our nautical charts and books of navigation are adapted to it, and our chronometers are set to its time. It has been so much our general practice to count from this meridian, that it consitutes a part of our familiar thought and knowledge.

The scientific importance of assuming at present an American Meridian is undoubted. So long as we depend upon that from which we are separated by an ocean, our absolute longitudes remain indeterminate. Such are the difficulties attending the astronomical determination of this element, that the greatest accuracy attainable is only an approximation to the truth; varying as observations or computations are multiplied, or as new and better methods and values are introduced.

There is no place on our coast, the longitude of which from Greenwich is so well ascertained as Boston. The observations and computations made for this purpose by the late Dr. Bowditch, and communicated to the American Academy, bear the marks of his genius and labor. Since then the means of determination have been greatly multiplied. Yet there still exists an uncertainty in this longitude, notwithstanding all the labor and care bestowed upon it, to the amount of perhaps two seconds of time. It is also a pregnant fact worth mentioning, that the relative longitudes, even of the Greenwich and Paris observatories, have been recently changed.

Lieut. Davis, proposed to establish an arbitrary meridian at the city of New Orleans, which will be exactly six hours in time and ninety degrees in space from the meridian of Greenwich.

YOUNG MAMALIA.

The celebrated Proff. Agassiz, remarked that Zoologists, in their investigations, have sadly neglected on one side of their subject, which, when properly studied, will throw a great amount of new light upon their observations. In studying animals in general, he continued, it has been the habit to observe them only in the full-grown condition, and not to look back at their earlier stages. We scarcely find, in any work on Zoology, an explanation of the many differences between the early and late stages of the growth of the same animal. Precise investigations of the subject are utterly neglected.

But there is one point which has been most throughly investigated, for a period of twenty-five years, viz: the early changes within the egg. But after the formation of the new being, we know little of the changes of form which it assumes up to the full-grown condition.

We find that young animals, of almost all classes, within the egg, differ widely from what they are in their full-grown condition. We find, too, that the young bat, or bird, or the young serpent, in certain periods of their growth, resemble one another so much that he would defy any one to tell one from the other —or distinguish between a bat and a snake, or a robin and a bat. [To illustrate this, the Professor had a number of preserved specimens of these animals in their embryonic state for exhibition.] In considering the subject further, he saw something of high value n these investigations—a thought behind the phenomenon; that they are all growing in so many different shapes only to fulfil the objects for which they are introduced. A knowledge of these gradual changes gives a natural scale, where we may examine the phenomena of animal life in all parts. The object of Prof. A. was only to lead attention to facts which he had observed among the Mammalia, in order to correct our classification of those animals.—He went on to designate, on black-board diagrams, the peculiarities which he had observed—demonstrating the remarkable similiarity spoken of as occurring at certain periods, by showing, among other things, that the wing and leg of the Robin in one stage of the growth, does not materially differ from the wing and fingers of the Bat.

Prof. Hare said the observations of Prof. Agassiz appeared to him of the highest interest; and he would be glad if any light could be thrown upon that power, in these stages of animal life, that produces the subsequent changes. He considered that the observations of Prof. Agassiz, completely proved that within the region of vitality there is a power entirely distinct from that of chemical action. He could not at all understand how these things were derived from general laws, There must be, he thought, special laws by which the animal are formed—showing to his mind, that the phenomena of life and vitality are after all peculiar powers, and not at all to be explained by chemical properties.

THE CHORAL INSECT IN MASSACAHUSETTS.

An interesting communication was read by Prof. Agassiz, on the *structure of coral animals*, He said that he was able to exhibit to the association, live coral insects from the coast of Massachusetts. During a late excursion in the Vineyard sound, with Lieu. Davis, in one of the Coast Survey ships, he brought up in the dredge, from a depth of seventy-two feet, off Gay Head, several specimens a coral, with its animals, which he had succeeded in preserving alive. It was a matter of surprise, he said, that the choral animal should have been found in this latitude. They teem in warm latitudes, and very few species are met with in the more temperate regions. But for the opportunity afforded by the Coast Survey, the existence of these animals could not have been expected on these shores; dead fragmenti, it is true, had been found on the coast, but whether they had lived in our waters or not was unknown. Prof. Agassiz remarked, that the few days he had spent on board the vessels of the Coast Survey, had given him more information than years spent in other places.

MIRAGES ON LAKE SUPERIOR.

Dr. Jackson.—The phenomena of Mirage, observed Dr. Jackson, have at all times excited the wondering admiration of mankind. Even those most versed in the causes of natural phenomena, cannot fail to be strongly impressed with these magnificent spectacles as they occur on the North shore of Lake Superior. Those seen by Dr. J. occurred in the months of July and August, 1847. For many successive days, the phenomena were presenting themselves in rapid succession along the coast opposite to Isle Royale, and on the Island itself, in the bays which so deeply indent its shores. At Rock Harbor, on several occasions, Dr. J. observed the little island and points on its outskirts most perfectly represented with inverted pictures of their entire forms hanging over their summits; the images of the spruce and arbor- vitæ trees which crown them, being seen with beautiful distinctness directly over their terrestrial originals—almost tops against their tops—while the picture of a little skiff was one day seen represented beside the phantom island.

The most wonderful mirage was observed from the north coast of Isle Royale, while the party of Dr. Jackson, were coasting along from the eastern to the western end of the Island. For several days in succession they had almost hourly repetitions of these curious phenomena. In some instances, the form of the island appeared changed, owing to the minute refractions of the line coast. At times he sun yields to the strange refractions, produced by the atmosphere over the great Lake, and as he draws near to the horizon expands his broad cheeks most good-naturedly, or sends out a long, pear-shaped neck.

RIVER TERRACES OF THE CONNECTICUT VALLEY.—Prof. Hitchock, the Prof. said, that his leading object was to elicit observations and remarks on the subject of Terraces, a theme which has excited a good deal of interest.

He had observed terraces in the Connecticut Valley, which, running nearly north and south, is some three hundred miles in length. He had found the Terraces to occur in successive basins. On the tributaries of the Connecticut River there are remarkably fine ones. He had rarely, however, found any more than 200 feet above the River; their height above the ocean he had not yet ascertained, but perhaps 100 feet more should be added along the central parts of Massachusetts.

The materials out of which these Terraces of the Connecticut are formed next came under observation. They have generally the appearance of being artificial, and (so far as the speaker had examined them,) the outer or highest portion is apt to consist of a coarser material than those underlying. All the materials he continued, have been worn from the rocks and communicated—varying from fair sized pebbles to rock which has been always reduced to impalpable powder.

The lower or inner terraces are the meadows, which are of course the deposits now going on. To Proff. H. they appear to have been the result of deposits from the River itself. He had found the deposit to be composed of fine clay, sand or loam.—The terraces he coninued, do not generally agree in height on the opposite side of the Valley. He had not found any such correspondence; though sometimes the higher *may* agree—the lower ones never. He believed that the River Terraces are all owing to the action of the River itself. To establish the theory of the marine origin, he considered we should have found practical evidence, marine shells &c. —whereas not a single organic relic of any kind has yet been discovered. The nearest approach to it is a number of concretions, which, though most remarkable, have nothing to do with organic remains.

WINDS AND CURRENTS.

Lieut. Maury.—By the abundant materials placed at the disposal of Lieut. M. he has been enabled to make such arrangements that there are now 1,000 vessels employed on the ocean in prosecuting these investigations, without expense other than the preparation of the Charts. He has adopted the plan of dividing the ocean into sections of five degrees each, with the different seasons of the year distinguished by colors, and instituting a certain number of observations from each. The charts already placed in the hands of navigators have materially shortened the distance from here to Rio Janeiro, by an average of four days. So that we have here an immediate and most important practical benefit.

The investigation once commenced, soon led to the discovery that there was a region at about the middle of the Atlantic, in which there are Monsoons not before known. Vessels have been going there at what have been considered good seasons, expecting to find favorable winds; but were met with disappointment. This pointed out the probability that longitude had almost as much to do as latitude with the winds. Lieut. M. went on to illustrate this. Vessels going from here to the Equator, after passing out of those winds known as variable, get into the region of calms, and from that into the North-East trade winds. By sailing to the South, they come to another region of calms; and again leaving these if in Summer, come to the region, of these six-months Monsoons. Charts have been prepared for the purpose of investigating what influence longitude and latitude have upon these trade-winds.

MEDICAL GEOLOGY CAUSE OF THE CHOLERA.

Dr. Jackson presented a paper from A. Lapham Esq, of Milwaukie, on the cholera confirming the opinion expressed by Dr. Jackson last year. He stated that there was a greater amount of cholera in limestone districts than in those based on granitic and primary rocks, which has received melancholy proof and confirmation at Sandusky City Ohio. There are in that region, places where the rocks are entirely bare of drift or soil of any kind, for a considerable distance. They appear to have been points over which the currents of the ancient ocean swept with unusual force; as clay, sand, gravel or boulders, were deposited. Several such places are to be found in the region of the upper Lakes. Sandusky City is one of them.

The Corniferous Limestone rock here forms the surface of the ground upon which the City is built. There is not soil enough upon it to support shade trees on the streets and public grounds. Cases, indeed, have been known, where the inhabitants have been compelled to send into the interior for earth with which to make a flower-garden As will be recollected, the Cholera commenced here suddenly, and with great severity, on the 24th of July—thirty-six cases occurring on that day. A great panic immediately prevailed, and a large proportion of the inhabitants fled, and business was almost entirely suspended. From that time till the early part of the present month, the disease continued with but slight abatement, the number of interments varying from 12 to 33 daily; in a population of about 2,500—or about equal to 6,000 interments per day in New York.

Mr. Lapham was hence induced. in view of the great importance of this new branch of medico-geological inquiry, to forward his communication to the Association, in the hope that the attention of men of science may be drawn to the subject.

THE POLAR PLANT.

Prof. Gray, read a paper about this plant. In 1843, he made known to the National Institute at Washington, the fact, previously unknown to the scientific world, but notorious among the hunters and trappers of the Western prairies, that the leaves of this plant face uniformly east or west, so that their edges point north and south. This fact has been called in question, Prof. Gray adduced abundant testimony establishing the fact. In endeavoring to account for it, some have suspected the presence in the plant of iron in some of its compounds, but none has been discovered by the most delicate tests. Others have conjectured that the polarity is due to electrical currents, as the plant is full of resinous matter, and sometimes called the *Rosin weed*. The more probable solution is, that the leaves present their flat surfaces towards the rising and setting sun, thus causing the numerous points around the edge of the leaves to point north and south. Dr. Hare inquired if the common belief, that the sun-flower turns towards the sun, had any truth in it? Prof. Gray replied that it was now regarded as a popular fallacy. The heavy sun-flower nods by its own weight, and is doubtless apt to droop towards the sun, on account of the wilting effect of the sun on that side of the stalk— but that it follows the sun in its diurnal course, is not believed. Rev. Prof. Morris of Jackson, Mis., remarked that in journeying upon the prairies, for several years, he had observed that in running compass lines north and south, the edge of the leaf was seen so that the plant was not conspicuous; but in running lines east and west, the whole plant was seen, and was a conspicuous object.

(*Concluded next week.*)

Cultivation of Madder.

Mr. Hector Giljam proposes in the Norfolk Herald to introduce the culture of Madder into the States of Virginia and North Carolina, the maritime counties of which he conceives to be admirably adapted for its production. The root of the Madder plant, as is well known, is extensively used as a dye-stuff, and is an important article of commerce, for which the manufactories of the United States are entirely dependent on foreign countries. Speaking of his project, the Herald says:—

"Mr. Giljam was formerly engaged in the cultivation and manufacture of Madder in Holland, but some time ago conceived the project of coming over to this country and introducing these branches of agricultural and commercial industry here, where the soil and climate, he contends, are well adapted to the growth of the plant."

Religion is the best armor that any man can have, but the very worst of cloaks.

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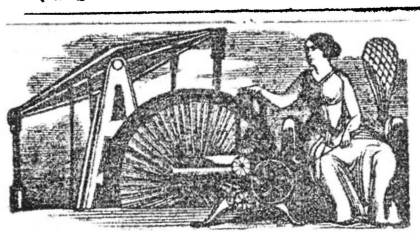


New Inventions.

Improved Iron Bridge.

Mr. Lyman A. Gouch, architect, now of this city, has made some valuable improvements on Iron Bridges which must command attention, and for which he has taken measures to secure a patent. He employs the inverted arch and trusses with iron (cast and wrought) screw stanchions, or braces, to keep the bridge braced according to the expansion or contraction of the metal from variation of temperature. The mode of bracing the stringers, &c., is done by breaking the joints, tieing each two together by a screw brace, thus making each one strong and inflexible. The bridge is well planned to secure it against vibration, (the great evil to guard against) by the greatest weight of metal being placed at and near the abutments, thus throwing it off the centre, which in other cases, acts against the parts of a bridge, when a carriage is passing over it, like swinging the greatest weight at the longest end of the lever. It is well planned to work in sections, on a turn table draw, and thus it can be rendered the very object desired for crossing canals or navigable rivers.

Ventilating Bricks.

The London Builder says that there has been registered in the Patent Office a brick so shaped that when two are placed end to end a circular space is left at the junction. This circular space connecting from course to course, a wall formed with them is, to a certain extent, hollow, and admits of currents of air through it, either heated or otherwise. Each brick is nine inches square and three inches thick, the size of two common bricks, so that only half the usual number is required to do a rod of brickwork, and as they pay but one duty, and are laid with a very little more labor than a common brick, work may be executed at a considerable saving. A common brick is used at the angle of each course.

Ingenious Plan.

A post office has been recently established at Scotland, in Pennsylvania. The Chambersburg Sentinel thus speaks of the arrangements of the new office to get the mails:—"Quite a feature of the new establishment is the novel and ingenious manner in which the mail is conveyed from the railroad to the office, a distance of perhaps of one-fourth of a mile. A line of posts planted at suitable distances is traversed by a wire, acting as an endless chain and carrying a small car, to which the mail-bags are attached. When the cars reach the point of delivery, the agent fastens the bag to the small car, and by means of a spring, sets it in motion, when in the course of a few seconds it reaches the office, and a return is made in the same space of time. This simple contrivance has also been adapted to the conveyance of water from different springs to barns and dwellings It is like Cox's Hydraulator, which appeared in our last volume, and which since then has been patented.

Vertical Gate.

Mr. Lorenzo Smith, of Easton, Mass., has invented and patented an improved gate, which opens and shuts vertically, with great ease, thus requiring no space on which to swing, and having other advantages over the ordinary gate.

[The above is from an exchange There surely must be some mistake about it. It surely is not lifted high above, away out of the reach of a hay wagon, nor down below into a pit in the ground.

Scientific Memoranda.

All wooden posts intended to be set in the ground should be placed in an inverted position to that of the tree from whence they were taken. The moisture ascends from the root, hence the reason for inverting the post, which practice proves to be correct, in making the posts last longer.

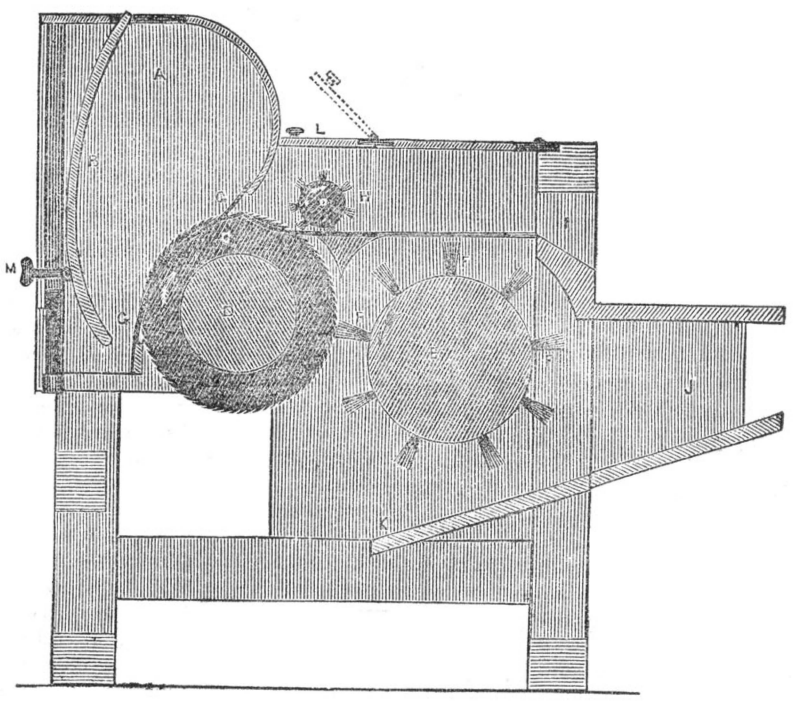
Strength of Gutta Percha Tubes.

A series of experiments to test the strength of gutta percha tubes, were tried at the Birmingham (England) Water Works, to test its fitness to convey water, in place of the iron pipes. The London Atheneum says, that the experiments were made under the direction of Mr. H. Rofe, engineer, upon tubes of three quarters of an inch diameter, and one-eighth thick of gutta percha. These were attached to the iron main, and subjected for two months to a pressure of 200 feet head of water without being in the slightest degree deteriorated. In order to ascertain, if possible, the maximum strength of the tubes, they were connected with the water company's hydraulic proofing pump, the regular load of which is 250 lbs. on the square inch. At this point they were unaffected; and the pump was worked up to 337 lbs.—but to the astonishment of every one the tubes still remained perfect. It was then proposed to work the pump up to 500, but it was found that the lever of the valve would bear no more weight. The utmost power of the hydraulic pump, therefore, could not burst the tubes. The gutta percha being slightly elastic, allowed the tubes to become a little expanded by the extraordinary pressure which was applied, but on its withdrawal they resumed their former size.

Millstone Cement.

Alumn water mixed with plaster of Paris is said to make the best cement for Burr millstones. Some put a little weak glue in the composition, but it must be very little, or it will be injurious, and it would do well enough without it.

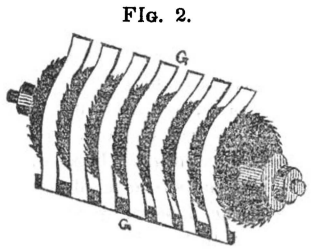
IMPROVEMENTS IN THE COTTON GIN.---Figure 1.



This is an improvement on the Cotton Gin ~~invented by Mr. John Du Bois, of Greensboro'~~, Green Co., Alabama. The nature of the improvement is the better removing of the mots, &c., from cotton, in ginning.

Figure 1 is a vertical section showing the interior, and fig. 2 is a view of the saws playing between the ribs or plates. The same letters refer to like parts on each.

FIG. 2.



Many people do not know the principal features of the cotton gin, although almost every person has heard of Eli Whitney, the inventor of it. A cotton gin, in principle, is a series of fine circular saws, C, fixed on a revolving shaft playing between the ribs, G G, as represented in fig. 2. The saws and ribs are confined inside of a casing, represented in fig. 1. A is the frame and casing; B is a curved hinged board, having two screws, M, (one seen) as the axis of the hinge. This board guages the opening of the hopper or roll box, ~~which admits the cotton into the chamber,~~ represented in front of the saw; from this chamber the saws, C, drag in the cotton between the metal ribs, G, separating, by this action, the cotton from the seed. The brush, E, revolving on a shaft, is placed with its axis of motion, below that of the saw axis, D. F F are the tufts of the brush; H is another minor revolving brush, in a chamber separate from the brush, E. L is an opening above it; this small brush is to remove the mots when thrown up by the saws through another series of short ribs, as represented by the saws projecting above in figure 1. This mot brush constitutes a good improvement, which can be added to any of the old machines. The ginned cotton is thrown out from the brush, E, into the cotton room through the sprout, J, having an inclined bottom board, K, down which the heavier impurities fall; J is the mouth of the mot box. Those acquainted with the cotton gin, will at once perceive that the large brush is arranged different to the saws, with those in the old machines, and that the mot brush, H, is an additional improvement. Measures have been taken to secure a patent. More information may be acquired by letter to the respected inventor at his place of residence, mentioned above.

Composition for Stopping Decayed Teeth

Take some powdered gum mastic, and digest it for several days in sulphuric ether, kept in a phial well corked; then strain it through a cloth and add some powdered alum until it is formed into a mouldable consistency. It is then put into a bottle, or phial, according to the quantity along with some camphorated alcohol and essence of cloves. The phial being well secured from the atmosphere, it is thus kept for constant use, when it is introduced into the cavity of the decayed tooth, which must first be well cleaned and dried. This stopping composition acquires a great degree of hardness.

There are only three ways of getting out of a scrape—write out, back out, but the best way is to keep out.

Naptha versus Chloroform.

In the Edinburgh Surgical Hospital, Prof. Simpson, has been testing the properties of Naptha, which seems to be as good as ether for inducing temporary insensibility. Professor Simpson administered the naptha to two patients, a man and a boy, on whom Mr. Miller performed the painful operation of extracting portions of necrossed bones from the tibia, by perforating the newly formed shell with the trephine, and removing the sequestra with the forceps. The sleep induced was deep and tranquil, and the breathing was less sterforous than when the chloroform is employed; but it was remarked that the effect of the naptha upon the heart's action was much greater, the pulse becoming extremely rapid and fluttering thus rendering it less safe as anæsthetic agent than chloroform.

Hovey's Straw Cutters.

We understand that Mr. Wm. Hovey, of Worcester, Mass. the celebrated manufacturer of "Hovey's Patent Straw Cutters," has succeeded in making some valuable improvements in his machines, whereby they are rendered more portable, and less expensive in their transportation, which is a very important *desideratum* in all machines. Our mechanics should study economy in the construction of machinery, and by all possible means to render it cheap, and still durable as possible, which can be done in many instances by avoiding unnecessary complexity. Mr. Hovey intends to patent his improvement, and we have no doubt it will enhance the value of his excellent machines,

Electric Telegraph between London and Paris.

The French Government has accorded to Mr. Jacob Brett the authorization to establish on the coast of France a submarine electric telegraph between Calais and Boulogne, which, crossing the channel, will go to Dover on the coast of England. The treaty entered into with Mr. Brett guarantees certain advantages to the French Gouernment, and leaves all the expense at the charge of Mr. Brett, assuring him, however, a privilegc for ten years in case the experiment should succeed. The works must be terminated by Sept. 1, 1850, at the latest; but it is probable that it will be finished sooner. This first application of the submarine electric telegraph, if it should succeed, as from long examinations which have been made there is every reason to hope, will produce on the relations between France and England results of which it is impossible at present to estimate the importance. Dover, the point at which the submarine telegraph is to join England, is united to London by a direct telegraph line; the capitals will, therefore, be in this manner in almost instantaneous communication.

Another Whitewash.

The editor of the Horticulturist, in answer to the queries of a correspondent, gives the following recipe for a whitewash. We have published a good many recipes for this purpose, but believe we have never published this. He recommends it as most excellent, as a cheap and durable wash for wooden fences and buildings. He thinks that it owes its durability to the white vitriol which it contains.

Take a barrel and slake a bushel of freshly-burned lime in it, by covering the lime with boiling water. After it is slaked, add cold water enough to bring it to the consistence of good whitewash. Then dissolve in water, and add one pound of white vitriol (sulphate of zinc) and one quart of fine salt. To give this wash a cream color, add one half pound of yellow ochre, in powder. To give it a fawn color, add one fourth of a pound of Indian red To make a handsome gray stone color, add one half pound of French blue, and one fourth pound of Indian red. A drab will be made by adding one half pound of burnt sienna, and one fourth pound of Venitian red. For brick or stone, instead of one bushel of lime, use a half bushel of lime and half bushel of hydraulic cement.

Coast Survey Signals.

We understand, says the Gloucester (Mass.) Telegraph, that some mischievous persons have destroyed several of the signals erected on the hills by the officers of the United States coast survey for the purpose of aiding them in performing their labor. We are sorry for this, for we supposed there were none in our community as to wish to hinder the operations of those engaged in so useful a work—that of obtaining an accurate survey of our coast. Instead of obstructing, every one should be willing to render such assistance as lies in their power.

[The scamps who did the evil spoken of above, deserve a touch of the thumb-screws.]

To Plant Lima Beans.

These kind of beans should always be planted on their edges, with their eyes downward, and covered with only about one and a half inches of soil. It has been discovered by experience that if they are planted flat, they are not liable to spring up, especially if they covred to deep with soil.

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NEW YORK, SEPTEMBER 8, 1849.

Inventions of the Day.

There are many who wonder, and enquire, "What becomes of the inventions that are now so numerous, and for which so many patents are obtained? Surely," they say, "they cannot be of much worth or we should hear more about them." It is true that many things are patented which are of minor importance compared with other things, but there is not a single article patented but must show some decisive proofs of originality and usefulness. The Patent Office marks "*useful*" a part of its creed in deciding upon applications for patents. We have no doubt but that many good patented inventions are slumbering in silence—inventions about which our country knows nothing, except those readers of the Scientific American who may have noticed, and no more, the inventors' names and the character of their inventions, on our patent list; unless the inventors let the world know someting about the results of their genius, by advertising, or some other suitable way, how can they expect the public to obtain a knowledge of their patents. Many good inventions, we have no doubt, have but to be known to be appreciated.

The public must not judge lightly of the value of patents, because their virtues are not blazoned abroad continually with trumpet tongue. Let any person of experience pass in review before his mind, the advancement made in the improvement of things really useful, and the value of such improvements will be felt and acknowledged. It is only by encouraging invention, that we can expect a continuance of improvement in those things useful to man. We are too prone to neglect the worthy, and be ungrateful to inventors above all others. Does the merchant who is whirled over the railroad in one tenth of the time which it once required him to travel from this to that place, ever offer up a heartfelt tribute to the inventor of the locomotive—to him who has saved him so much time and expense in performing his journey? We will answer in the negative. What man among us offers a tribute of heartfelt thankfulness to our inventor—him who, by his wonderful genius, sends a message of life fraught importance, over a thousand miles of space, in a few seconds, bringing back on the lightning's wings, words of hope and gladness, relieving a dreadful suspense, which not long ago, would have had to endure for days and weeks? We will answer: No one. We might go on piling up name upon name of those men who have benefitted every individual, by the works of their genius; but we believe that we have said enough to impress the mind of every person with the importance and value of *the inventions of the day*.

Jacob Perkins.

The London papers of a late date, inform us that "Jacob Perkins" died on the 30th of July, at the residence of his son, Regent Square, London, at the advanced age of eighty three. This event, in other cases, would have been passed over without a single word from us, for what is the name of Jacob Perkins more than the name of John Smith. But it is not the name, it is "the man."

This Jacob Perkins was an American, born at Newburyport, Mass., we believe. He must have been born about 1766, consequently he was one of the olden Colonial time. In his younger days, it is stated, that he invented the machine for cutting and heading nails. Whether he was the first inventor of the nail machine or not, we cannot tell at present, the evidence before us is adverse to his claims for priority in this invention. Mr. Perkins was but little known in the world until he went to London, when his experiments with high pressure steam at once made him a conspicuous person, as his ingenuity, daring and perseverance proclaimed him to be no ordinary man. In 1819 his steam gun was patented in America, and in 1823, we think, he introduced it to the notice of the British Government. He made experiments before the Duke of Wellington and a numerous party of officers, and at a distance of 35 yards he shattered iron targets to pieces, and sent his balls through eleven planks, one inch thick each, and placed an inch apart from one another. His gun was very ingenious, and could discharge about 1000 balls per minute. His steam gun, however, was not purchased by the British Government, and we believe that although he was employed to build one by the French, yet it somehow or other ended in disappointment.

Within the past two years there have been reported accounts of two great French discoveries for generating steam. One to raise it to an astonishing pressure, by suddenly letting in a small quantity of water into a heated vessel, and the other relating (but the same thing) to the spherical property of water. These discoveries belong to Perkins. No man, until the daring Perkins did it, investigated the property of steam at extraordinary high pressures, he even employed it more than once at 65 atmospheres, 975 pounds on the square inch. The artistic and literary world is more indebted to Mr. Perkins, that perhaps one in a million is aware of. He it was who first discovered the method of softening steel plates for mezotinto engraving; this was in 1821. Although the name of Mr. Perkins, has for a long time ceased to be heard as connected with inventions and discoveries, and although his steam gun and his high pressure steam boiler have long laid as low as he now lies, yet his fame cannot depart. His extraordinary inventive powers were highly appreciated in London, both by high and low. One well qualified to judge, says of him, regarding his experiments in high pressure steam: "Viewing his exertions from first to last, no other mechanic of the day has done more to illustrate an obscure branch of philosophy by a series of dangerous, difficult and expensive experiments." From all those experiments in practical mechanics, (and what subject is more harrowing to the mental faculties) Jacob Perkins, the American Inventor, is now set free. He sleeps far from his native Newburyport, his nome by the side of the sea, and he reposes in the City of the World—the wilderness of myriad homes. His hammer is silent in the workshop, he has ceased from his labors, but "although dead he yet speaketh.'

Camels for the Western Prairies.

Mr. F. G. Skinner, of the Patent Office, is preparing an Essay for the next Patent Office Report, on the adaptation of Bactrian Camels to the prairies of the Great West. We should like to see a fair trial made with them, although we have strong doubts of their success. It is our opinion that during the period it will require to introduce and acclimate the camel, our go ahead people will have a railroad made to the Pacific. Our country is altogether different from Asia in the requirements of the camel. In that ancient continent we find it studded with large and rich cities, separated from one another by mountains, deserts or lonely wastes. A trade can always be carried on between two cities, to exchange the products of one for the products of another, but a country without cities, is a country without a commerce or trade, and therefore no trading caravans are required. Our Great West is a primitive country, in respect to cities. We must first make them before we require to established lines of canals, railroads, or it may be *ships of the desert*, to bring the products of the East to the West, and the West to the East. When we have made Anglo Saxon cities in the West, the world will then discover that the Rocky Mountains will form no impassable barrier to our locomotives, the disc feet of which will roll along our western prairies, with a speed as much greater than that of the camel, as the camel is to that of the donkey.

Singular Case of Hydrophobia.

A. Mr. W. Willett recently died in Philadelphia of hydrophobia, and there was no evidence that he had been bitten, except that, it was stated, he had received a scratch of a bite from a dog about a year ago. The Doctors that attended him believe that it was a case of spontaneous hydrophobia,—which is more than a doubtful conclusion, we think.

Cochineal.

This beautiful dye drug, is an insect, the *Coccus Cacti* of Linæus. When first introduced into Europe, it was thought to be a vegetable seed. It lives upon the cactus, and the greatest quantity of it used to be raised in Mexico. Two kinds of it are gathered, the one wild the other cultivated; the wild is inferior to the cultivated kind. The males of the insect have wings and are seldom found in the cochineal of commerce. The female insect has no wings; she is of a reddish brown color, with a hemispherical wrinkled back. The species of cactus on which the cochineal insect attains to the greatest perfection, is named the cactus cochenillifer. It has red and crimson colored fruits. When the Spaniards arrived in Mexico, they found the natives well acquainted with the use of cochineal as a coloring drug. In 1759, John Ellis, F.R.S., of London, received from Dr. A. Garden, of Charleston, S. C., some joints of the cactus with the nests of the insects upon it, which were laid before the royal society, and along with the plant and insects, Dr. Garden sent a very minute description of his investigations into the habits and form of the insect. There are two varieties of the true *nopal cacti* in Mexico, on which the insect is raised, but the wild kind when cultivated and raised upon the special kind (Castilian Nopal), becomes about half as good as the other. The nopals or cacti on which the cochineal insects are raised, are not covered with hard thorns like most of the cacti or prickly pear—the name by which it is generally known,—the thorns at least are quite soft, rendering them accessible to collect the cochineal.

There is one male for about 3000 females, it is supposed; great care is taken to destroy those that are to be used as a drug, at the time they are about to bring forth their young. The insects are stripped from the plants by laying down cloths and drawing the dull blade of a knife between the under surface of a branch of the *nopal* and the clusters of the insects on it. They are then killed by steaming them in the cloth, or dipped in scalding water, and then spread out to dry in the sun. To preserve the stock of cochineal insects, they are secured on the plant from wind and rain in the wet seasons, by covering them up with matting; but the wild insects need no such care, and they propagate quicker, giving six crops in one year, while the cultivated superior gives only three. Where the wild and cultivated are raised on one plantation, the two kinds are kept separate, so that the one kind may not amalgamate with the other. The delicate superior cochineal has attained to its present perfection by long care, through many generations, both by the Indians and Spaniards. It is generally allowed that the color of the cactus has nothing to do with the color of the insect, as it feeds not on the red fruit, but upon the branches. There has always been a very great demand for cochineal, yet from 1790 to 1835, the increase of importations by Europe only amounted to 18,320 lbs. In 1791, 400,000 pounds were imported, and in 1835, 418,320. The cochineal sold in London is often adulterated with what is called the East India cochineal, a worthless insect; but we are not troubled with such adulterations in the United States, although a great deal of very inferior stuff is sold. The best cochineal is a full and plump insect of a crimson brown color, having a whitish color in the wrinkles on its back, which run across the same and are intersected with a central longitudinal furrow.

In Clavigero's History of Mexico it is stated that the ancient inhabitants of Mexico obtained a purple color from cochineal. This was doubted for a long time in Europe, but with a mordaunt of alum and a small portion of iron, it can produce a purple; this, however, is not the common way to produce this color, cochineal is used to dye the most brilliant of all colors, the scarlet on silk and wool. It is used to impart the ruby blush to the cheek of the vain one, who dreams not, while she flaunts her borrowed beauty, that she is indebted for it to an humble insect. Red can be dyed on silk and wool with ground cochineal, by first impregnating the fabric with a solution of alum. A more brilliant color is produced by a mordaunt of the chloride of tin and cream of tartar. The beautiful pigment, carmine, is made from cochineal, and a very chaste pink is dyed upon cotton, by first impregnating the cotton with a solution of sugar of lead. Owing to the high price of cochineal, another drug named *lac* is much used as a substitute for it. It is imported from India and is much cheaper, although far inferior in point of brilliancy of color. Were it possible, and we think it is, to raise cochineal for one dollar per pound, we would not depend upon India for her lac as a dye drug. The cultivation of cochineal is something which should arrest the attention of our people, especially, since we have recently extended our sway over some territory, which, no doubt, can yield it in perfection. As far back as 1793, the sale of it, exported from the Spanish colonies to Europe, amounted to $3,000,000. It may be said that every pound of it that could be raised, would add $1,25 at least, to the wealth of our country. This subject, then, is certainly worthy of much attention.

Distinctions in Society.

In America we have no national aristocracy, we have no laws of entail. The rich of to-day are among the poor of another generation, in their descendants. The majority of our wealthy citizens have battled poverty at some period of their lives. If wealth is *honestly* obtained, is there one who can consistently revile its possessor, with the stigma "codfish aristocracy," &c. No intelligent man, however poor, will do it. Those who are continually stigmatising and ridiculing one class, acting as demagogues to get the favor of another class, should be looked upon with jealousy, for assuredly they cannot be honest men. There should be no distinctional feeling of classes in our country. Every man, be he rich or poor, should be estimated by the worth of his moral character alone. It is often the case that working people look with envy and talk with ill-will against those who have become rich, and who once labored hard with the horny hands; and those who become rich often forget the rock from whence they were hewn. These things should not be; we are all Uncle Sam's "bairn's," and the true way to live happy is for every one of us to "do justly and love mercy," on all occasions.

Victor Vardalle's Perilous Ascent in a Balloon.

On the 30th of Aug., Victor Vardalle, the celebrated French Balloonist, who made a number of ascents at New Orleans, head downward and feet up, was to make an ascention from Vauxhall Gardens, New York, on the day stated above, and to perform some pantomime tricks in his airy flight. Shortly before six o'clock the inflation was completed, when the car was attached, and on the signal to let go the ropes being given, the excitement became very great. This part of the business being managed very unskillfully, the balloon struck against a tree, and then went a short distance in a slanting direction, tearing up a pole which had been several feet in the ground, and to which was still fastened one of the ropes. By the effort of the aeronaut himself and the exertions of one or two in the gardens, this difficulty was surmounted, and the balloon ascended amidst the cheers of those on *terra firma*, but it had not proceeded far before it came in violent contact with Dr. Gray's house, in Lafayette place, the car lodging on the front, and the main part of the balloon hanging from the chimney top. Vardalle displayed great courage and self possession while in his perilous situation. He tried to open the blinds of the window, which he was unable to do, but he held on until he was relieved by those inside. At first it was thought that he could not, by any possibility, escape with his life. Thousands surrounded Dr. Gray's house to see the man, who in a short time made his appearance, and seemed quite unconcerned at what had occurred, and only regretted the serious injury which his stock in trade had suffered.

Blake's Fire Proof Paint.

We would call attention to the advertisement of this article in another column. We will speak of its nature, use, &c. next week.

Thirty-four Fire Engines are now building in this city.

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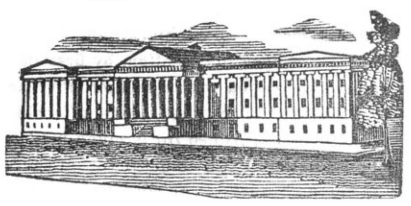

LIST OF PATENTS.

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending August 28, 1849.

To Edwin B. White, Nashua, N. H., for improvements in Rotary Spike Machines. Patented August 28, 1849.

To Reid R. Throckmorton, of Brooklyn, N. Y., for improvement in Planing Machines. Patented August 28, 1849.

To Joseph Garside and Henry J. Betjemann, of Harrison, Ohio, for improvement in machinery for Cutting Screws in Bedsteads. Patented August 28, 1849.

To Jesse Fitzgerald, of New York, N. Y., for improvement in machinery for Dressing Treenails. Patented August 28, 1849.

To Alfred Stillman, of New York, N. Y., for improvement in Sugar Pans. Patented August 28, 1849.

To David O. Macomber, of New York, N. Y., for improvement in Fountain Pens. Patented August 28, 1849.

To R. F. Loper, of Philadelphia, Pa., for method of working the Air Pump and using a condensing as a non-densing engine. Patented August 28, 1849.

To Simeon Hovey, of Painesville, Ohio, for improvement in Bedstead Fastenings. Patented August 28, 1849.

To G. N. of Millerstown, Pa., for combined construction and operation of the Drill in Rock-Drilling Machines. Patented August 28, 1849.

To Michael English, of Lagro, Ind., for Gold Washer. Patented August 28, 1849.

To John W. Thurman, of Buchanan, Va., for improvement in Hill-side Plows. Patented August 28, 1849.

To Lewis Tupper, of Auburn, N. Y., for improvement in Straw Cutter. Patented August 28, 1849.

To Abram Bloom, of Newville, Pa., for improvement in Threshing Machines. Patented August 28, 1849.

To Henry G. Davis, of Millbury, Mass., for improvement in SpinalSupporters. Patented August 28, 1849.

To J. W. Martin & E. Perry, of Northern Liberties, Pa., for improvement in Chucks. Patented August 28, 1849.

To Robert Smith of Leesburg, Pa., for improvement in Spring-seat Saddles. Patented August 28, 1849.

To Matthias P. Sawyer & John W. Hall, of Boston, Mass., (Assignees of Samuel A. Cox, of Malden, Mass.,) for machines for Bending the Lips of Wrought-iron Railway Chairs. Patented August 28, 1849.

To D. J. George & N. Millington, of South Shaftsbury, Vt., for improvement in Graduating Carpenters' Squares. Patented August 28, 1849.

To Samuel Jones, of Moundsville, Va., for improvement in machinery for Jointing Staves. Patented August 28, 1849.

Planing Machines.

JUDGE KANE'S OPINIONS ON PATENTS.

There is no profession which requires more sound sense, sagacity and knowledge than that of law. Our superior courts should embody the wisdom and erudition of the law. We are happy to believe that this is the case; yet, peradventure, all our judges are not perfect men, or there would be no revision of their opinions, whereas we know that such things as revisions do not unfrequently happen. In the month of March last Mr. D. Barnum, of this city, received a patent for improvements on the Bramah Disc Planing Machine, a description of which will be found in No. 18, this volume (4) Sci. Am. After receiving his patent he set up his machine in Philadelphia, when Mr. J. Wilson applied for an interlocutory injunction, to restrain him from using it, as being an infringement of his rights, he being owner of the Woodworth Patent, in that District. Judge Kane granted the injunction in the month of May last, and we hereby give some extracts from his opinions expressed on that occasion

"The grant of a patent to the defendant can have no other effect on the present discussion than as it indicates the opinion which highly respectable and skilful officers have formed on an *ex parte* examination of the case."

No great compliment, we think, to the officers of the Patent Office, and one that does not please us. The Judge then goes on to explain the difference between the Woodworth's Machine and Gays and McGregor's, and also those of Bentham, Bramah and Muir. Relating to Woodworth as differing from them, he says:—'He affixed his cutters to the periphery of a revolving cylinder, and advanced the plank towards them, under strong pressure, in a plane tangential to their motion; thus making the cutters describe a curve upwards, from the finished through the rough surface of the plank, and preventing the plank from vibrating sensibly during the operation. The *plank moving firmly along the tangent plane of the rotating cylinder, beyond the reach of the cutters, and was disengaged from the action of the machine at the moment the work was perfected.*"

"The machine of the defendant, Barnum has the Brahmah disc, with its two sets of rough and finishing cutters; but the plank is made by a very ingenious contrivance to advance along a metallic guide, either in a straight or slightly curved line, till it comes beneath the axis of the disc, when by a turn in the guide it is bent outward over a small roller, and thence passes from the machine in a line similar to that by which it appro ached it. The finishing cutters begin to act upon the plank in a line very nearly parallel to its surface, and complete their work as the plank turns over the roller.

We have thus a machine that cuts in a right plane upon a curved surface; the revolving disc, at the moment of finishing the work, forming a tangent plane to the curve of the advancing plank. We have too, a roller, over which the plank is forcibly bent, and which by its resisting pressure to the elasticity of the plank holds it steady under the action of the cutters. That is to say, we have a machine, just the converse, as well as the equivalent, of that invented by Woodworth. One general expression may include them both: A planing machine, in which the cutters and the material move against each other in a curve, and in its tangent plane respectively; the material being kept from vibrating by by roller pressure. It is true, that in one machine, it is the cutter which follows the curved path, while the material moves along the plane, and that in the other the cutter moves in a plane, and the material is acted on in the curve—but there is no other difference.

My only embarrassment in arriving at this conclusion has been owing to the fact, that of the highly educated mechanics whose affidavits have been taken in the cause, the grea ter number have expressed a different opinion."

At the time the judge granted the injunction it was urged by the defendant to send the case to a jury trial. This the judge refused to do, but since that, before Judge Grier, a trial of Jury was ordered for the 5th of next October. It is our desire, sincere and honest, to see justice done to all. We therefore set this matter before our readers for their information, in order that they might obtain as much legal patent knowledge as possible. Tne question was an infringement, and the operation of the two machines is here set forth in Judge Kane's own language. We request attention to the words in Italics.

As for ourselves, we can see no similarity in the inventions, and we think that the respected judge has given a wrong construction to the roller in the defendant's machine. It is not a pressure roller, it does not keep the board from springing up to the cutters, (the essence of Woodworth's claim) for it is under the board, acting a totally different part from a pressure roller—it is a mere friction roller, surely the judge did not calmly turn this point over in his mind. The idea of construing the board into the *cylinder*, we had thought would never be advanced by any scientific man, for it is simply impossible,, and we venture to say that whoever constructs a planing machine with a series of revolving cutters on disc, cone, or cylinder and feeds in his board as a cylinder, will assu redly present a different invention from eith er Bentham's Bramah's Woodworth 's or Barnum's. Talking about geometrical lines in some inventions, is like a revival of the old hobby of the schoolmen's disputes, "wh ether or not, two spirits could occupy the same space at the same instant of time." If light from an opposite view can be thrown on this subject we are willing to receive it.

Hemp.

Mr. James Anderson, in a letter to the Louisville Journal gives, some valuable information relating to the rotting of hemp. He says, it has been, and still is, the practice of hemp-growers to allow their hemp (after spreading in the fall of the year) to remain exposed to the action of the atmosphere until a decomposition of the fibre has progressed fo far as to enable them to brake it with facility on the hand-brake; the quality is thereby rendered unequal, the original strength much impaired, its texture destroyed, and its weight much reduced. In consequence of the undue exposure of this article to the blighting influences of the atmosphere, a decomposition of the fibre has commenced, and its destruction is accordingly hastened, whenever exposed to ordinary heat and moisture; hence its want of durability, in comparison with water-rotted hemp.

This defect can be obviated. Let the hemp remain in the swarth, on the field where it grew and was cut; a few rains will suffice to cure it for the brake; or after sufficient exposure to the sun, it may be stacked for all spreading; when, after a few rains or when half rotted, it may be shocked, preparatory to *breaking*. Either of these processes would be at present objected to by the practical farmer in consequence, as he would say, of the impossibility of breaking and cleaning it. But by the aid of a Milling Machine, half rotted hemp can be broken with great rapidity; it does not impare the quality or strength of the fibre, but has a tendency to loosen the wood, by a milling process; when the wood is so severed, it is an easy matter for one hand to clean 500 to 600 pounds per day, on the hand-brake, or by scutching, or by whipping and shaking. The quality of the article so produced is bright, soft, and lustrous.

The method employed by farmers in water-rotting hemp, is to let it remain immersed in water until the glutinous matter is completely dissolved; the consequence is a perfect impairation of the strength of the fibre; for a complete solution of the gummy matter could not take place without fermentation, and fermentation is the beginning of decay. To pro duce an article ot hemp suited to the consumption of the Navy Department, it is only necessary to immerse the hemp for a period of twenty-four hours, then withdraw the water, and let the hemp remain in bulk until the generation of natural heat takes place; that will be observed in the course of ten to twenty hours, after a thorough impregnation by the heat; then inundate a second time, and let it remain until you are prepared for its convenient removal. It may, after the process of heating, remain in the water for months without any disposition toward fermentation; and surely, if it does not ferment in water, there is no danger of its doing so in cordage.

With the aid of the Improved Milling Machine, I am sure, that a good hand could clean 500 pounds per day on the hand-brake, or hemp prepared as above. Hemp so prepared is remarkable for its weight and oily appearance, and just the article that would make the superintendent of the United States rope-walk exclain, "America can beat the world."

The Manufacture of Pot and Pearl Ash

The processes of manufacturing the pot and pearl-ashes in the United States and in the Canadas, is very simple, but by no means so economical as they might be. In general, the clearing the land of wood, is the primary, and the manufacture of these articles only a secondary, object. The wood is usually cut into lengths of eight or nine feet and thrown into piles of one, two, or more cords, and, when partly seasoned, set on fire. The woods which are cut in summer are said to be the most productive in alkali. The ashes resulting from the combustion are, when cold, gathered up and put into large tubs, the bottoms of which are covered to the depth of 6 or 8 inches with brushwood, and over that with a layer of three or four inches of straw. Water is then poured upon the top, and suffered to filter through till all the soluble matter of the ashes is extracted. The ley runs off through an aperture near the bottom of the tub designed for that purpose. It is then boiled in large cast iron kettles till the water is all evaporated, and the matters, which were held in solution, obtained in a sold ferm: this product is familiarly known to the workmen by the term of brown salts, or salts, simply; it is of a very dark,—almost black color, and a very strong alkaline and acid taste, and consists of a very large proportion of potash, mixed with more or less carbonaceous matters, vegetable salts of potash, and small portions of silex and other earths. To convert these brown salts into potash they are again thrown into a cast iron kettle of considerable thickness, fused and subjected for an hour or two to a full red heat after the mass is perfectly liquid. By this means the carbonaceous matters are for the most part decomposed and burned out. The remaining product is, when cold, broken up and packed in tight casks, and constitutes the American potash of commerce. It contains from five to twenty per cent. of pure potash, combined or mixed with variable proportions of carbonic acid, and compound carbonaceous matters, silex and other earths, the proportions and quantities of the latter depending very much upon the care which may have been used in collecting the wood ashes after the combustion. The potash of commerce is usually divided into four sorts, according to the degrees of purity of each.

If the salts obtained by the evaporation of the ley in the first instance are re-dissolved in a small quantity of water, there will be a considerable deposite of less soluble earthy substances, and the clear liquor, when evaporated, will afford a much purer product than that obtained in the common way, and the potash resulting from it will be proportionally purer. This plan is indeed adopted by many potash makers. Unskilful manufacturers of potash are sometimes much troubled with the presence of nitrate of potash in melting down the brown salts; this difficulty is remedied by mixing with the brown salts, previous to melting, a small quantity of powdered charcoal. It is probable that nitric acid, (and, of consequence, nitrate of potash,) is always a product of the combustion of wood in the open air; but the quantity varies with the circumstances of the combustion, and in ordinary cases, the carbonaceous matter in the brown salts are sufficient to decompose it without the addition of charcoal.

In the manufacture of pearl ash the process is the same up to the production of the brown salts. They are then thrown into a reverberatery, and ca lcined till the whiteness of the product indicates the entire dissipation of all carbonaceous and volatile matters. The salts are, of course, stirred or raked frequently, during this process, which is called pearling. The product is the pearl ash of commerce, a sub-carbonate of potash, uncontaminated by vegetable matter, but containing more or less of earth y impurities, derived principally from the bed upon which the wood was burned. Particular care is taken that the temperature do not rise so high in the pearling as to cause the salt to melt, as upon this circumstance the superior purity of the pearl-ash in regard to carbonaceous substances, depends.

The immense supplies of pot and pearl-ashes for the arts and for exportation, are in this country, derived exclusively from the combustion of forest timber. Owing to the great abundance of wood no attempt has been yet made on an extensive scale to procure them from the smaller tribes of the vegetable kingdom.

Two-shilling pieces, called florins, are now coined at the English mint. A proclamation has been issued by the Queen, declaring them legal tender.

Men of thought and men of action, are not often men of great tongue. The most profound thinkers, ...e been indifferent speakers.

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TO CORRSPONDENTS.

"S. W. H., of N. Y."—Letters Patent were granted in 1846 for an improved water wheel similar to yours. "It is worked on a vertical shaft, and receives the water upon it entirely around the hub. After the water reaches the wheel it is received into openings extending a considerable distance around the wheel. The bottom of these tubes incline downwards, and the vertical sides appraoch each other to such a degree that the areas of the cross sections of the tube are every where equal, and the water is finally discharged tangentally, in a thin vertical sheet, outside of the wheel." This plan appears precisely like yours.

"L. W. H., of N. H."—Prof. Morse's Patent was granted in 1846. His claims are found in the Report of the Commissioners of Patents of that year.

"T. A. R., of Pa."—Your enquiries are not properly within our line of business; however, as we have the information asked for, we will furnish it. Nero was a Roman Emperor, and was infamous in the extreme for his henious crimes and vices. He set fire to the city of Rome, in order to gratify his evil passions, and it is said he "fiddled" during the conflagration. He assassinated his mother, and afterwards committed suicide to escape the rage of his countrymen. He belonged to the race of Cæsar, and was celebrated for his expertness in all kinds of games, and prided himself greatly upon his musical skill, which probably gave rise to the saying that "he fiddled while Rome was burning."

"A. O. S., of Mass.—To impregnate wool with the aluminous basis, it is commonly boiled in water, with about one-sixth or one-eighth of alum, and about one-fourth as much tartar. The heat is gradually raised to the boiling point, and the liquor kept boiling for about an hour, then taken out and drained, when it should be well rinced. Wool, from its animal nature, has a much stronger attraction for alumine than either linen, silk or cotton, but will not decompose a solution of alum without the aid of a considerable degree of heat.

"G. W."—Communication received, and will be attended to without delay.

"K. A. L., of N. C."—Your communication has been received and examined. The principles set forth in your invention are identical to those found in the patent granted to L. B. Woods, of New Hampshire, some 6 months since. You had better not attempt an application.

"C. J. P., of Canada."—Your enquiries will receive attention by letter, in the course of a few days.

"W. H. S., of Mo."—Your model has been received and examined. There are several novel points in the combinasion worth securing by letters patent. You had better associate some person with you who has means to carry it through. We have never taken interest in new inventions in the manner proposed.

"H. W. R, of N. Y.—We have not been able to lay our hands upon the information you want; we may find it soon, and may not. If we do it will be published.

"J. S., of Phila."—You will find the information about propelling in the Franklin Journal, of the months of January and February, 1849.

1st. We could not answer, nor any other person. The back water has been prevented in many wheels that have been tried, but they had greater evils than the one they attempted to remove. 2nd. No velocity of the wheel can destroy the law of gravity. Every planet in space moves obedient to its mandate. We do not understand you in speaking of the velocity of the wheel overcoming a certain gravitating force. See Hutton's Mathematics on the *Centre of Gravity*.

"C. H., of Pa."—Three numbers of Ranlett's Architecture were forwarded to you on the 3d inst. We could not answer your particulars, therefore sent nos. 8 9 and 10 of vol. 1. The numbers were sent to Mr. Silkman's address.

"J. R., of Milton."—We forwarded on the 3d inst. 1 copy of Walker's Electrotyping to your address; $1,00 received.

"A. R. H., of Benton, Ark."—We forwarded to your address one copy of Ewbank's Hydraulics; $3,00 received and appropriated as you requested.

"G. A. I., of Ky."—Your letter of the 22d ult. came safe. We have forwarded by Livingston and Fargo's Express 9 numbers of Ranlett's Architecture, 1 Ewbank's Hydraulics, 1 copy of Monfitts Manipulations We forwarded by express in July 1 Camera Lucida, and 1 number of Banlett, Carr, Spears, Dickerson & Co.

We have entered your name for two years subscription to the S. A.

"G. W. of Pa."—$2. received.

"W. M. S. of Pa."—We can supply you with Miner's work on Bees, price $1,50.

"W. & G. of Rockville."—It was an error, $30 is what we should have acknowledged as received.

"W B. of Ind."—We can furnish you with a work on the subject, you mention for $3.

P. S. E. of N. Y. W & G. of Ct. G. W. M. of N. Y. L. & B. of N. J. L. A. G. of Mass. A. R. of Pa. Four papers have been forwarded to the Patent Office, since our last issue.

Money received on account of Patent Office business since Aug 29—P. S. E. of N. Y. $22. W. & G. Ct. $20 A. C. of N. Y. $15 A. C. C. of Mass. $30. T. B. per R. & C. of N. Y $30. P. B. of Ct. $30. L. & B. of N. J. $30 J. B. of Va. $50. W. W. of Ct. $30. R. O. G. of Ct. $30. R. & W. of Ct. 30.

Notice.

Mr. W. B. Billings, of Eastport, Maine, is authorized to receive subscriptions for the Scientific American; any business of this kind entrusted to his care will receive prompt attention.

Advertisements.

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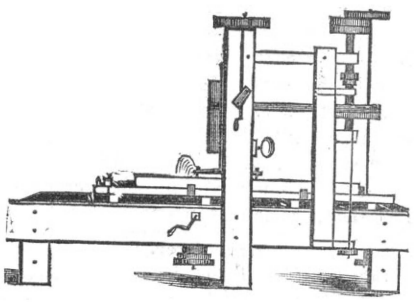
Williamsburgh, - -	J. C. Gander.
Warren, Ohio, - -	C. J. Van Gorder.
Webster, Mass. - -	J. M. Shumway.



DANIEL'S PLANING MACHINES.
Manufactured by
BALL & RICE,
(Successors to Thos. E. Daniels,)
Worcester, Mass. 50 3m*

NOTICE.

☞We have constantly on hand and for sale:

Minifie's Mechanical Drawing Book, bound in calf, : : : : :	$3,00
Cook's Condensing Engine, Plate and Book,	$3,00
Leonard's Mechanical Principia, :	$1,50
Scribner's Mechanics, : : :	$1,50
Ewbank,s Hydraulics and Mechanics :	$2,50
Morfitt's Chemical Manipulations, :	$2,50
Ranlett's Architecture in numbers, each	50
Arnott's Gothic Architecture " "	25
Camera Lucidas, : : : : :	$6,00

j14 MUNN & CO.

BLAKE'S

PATENT FIRE PROOF PAINT, from Ohio, which in a few monts turns to slate or stone, protecting whatever covered from the action of the weather and from fire. Purchasers should be particular and see that every barrel is marked "Blake's Patent Fire Proof Paint." as there is any amount of worthless counterfeit stuff in the market, called fire proof paint. The genuine article for sale by the patentee, at No. 3 Broad street, New York.
51 12* WILLIAM BLAKE.

ADEE'S AMERICAN CAST STEEL WORKS,

At the foot of 24th street, East River, New York.

THE above Works are now in successful operation, and the proprietor would respectfully call the attention of machinists and all consumers of the article to an examination of his Steel, which he is warranted by the testimony of the principal machinists and edge tool makers of this city, to recommending as fully equal in every respect to any ever used in this country.

A full assortment of the different sizes constantly on hand, which the public are respectfully invited to call and examine at the office of
DANIEL ADEE,
51 6ms 107, Fulton street, New York.

MACHINERY, &c. FOR CLOTH AND OTHER MANUFACTURERS.

ONE Shearing machine, with extra spiral and iron frame, 2 yards wide, made by R. Ralston, Glasgow; 1 Power loom, 1 Card cutting machine, 1 Crimping ditto, 1 Jacquard ditto; also Reeds, Shuttles, Press Boards, &c- for sale low by
J. C, ERNENPUTSCH, 1 Pine street,
50 4* near Broadway.

DOG POWER MACHINERY.

FOR SALE, Three fine Newfoundland Dogs, trained in the most complete order, they require no tieing in, but obey the commands of their master; likewise the Drum, 10 feet in diameter, which is all put together with bolts and screws, and can be taken to pieces, and packed in a small compass. To farmers for churning, pumping water, cutting straw, &c. or for any light, mechanical purpuroses, this is a rare chance, a full description of which is given in the Scientific American, No. 8, Vol. 4. For particulars apply, if by letter, pp. to
50 4* THOS. PECKOVER, 240 Water st.

To Manufacturers or Capitalists about to commence the Manufacture of Cottons.

TRE subscriber, brought up with Messrs. Samuel & Jno. Slater, at operating and building cotton machinery, and for the last 20 years has travelled through several of the United States, setting up and building, on the most approved plans of modern invention, now offers his services as Superintendent and is ready to introduce a new system, greatly reducing the cost of manufacture, and at the same time making better goods than ever was in the market. Please direct, post paid, to
G. W. HOWARD, 228 Eddy st.,
49 2m* Providence, R. I.

FAIRMAN'S PATENT UNIVERSAL CHUCK FOR LATHES.

OLIVER SNOW & CO'S Hand Planing Machines, Boring Machines, &c., also Lathes for Dentists, Jeweller's, Wood Turners, &c. Lathe Wheels, Bands, Hooks and Eyes, Circular Saws, Saw Mandrills, and every other description of Tools for Machinists, Carpenters, Coachmakers, &c., constantly on hand at WOOD'S old established Tool store, corner of Chatham and Duane streets, New York.
Planes made to order and warranted
Carpenters' and amateurs' Tool Chests, &c.
49 3m*

MECHANICS' FAIR.

THE Salem Charitable Mechanic Association announces to the public, that their first Exhibition will be held at Mechanic Hall, in the city of Salem, commencing on Monday, September 24th, and continuing through the week.

We invite all to contribute in every department of industry which can in any way promote the comfort, convenience or improvement of mankind. We respectfully solicit the aid of Mechanics, Manufacturers, and Artists. Let them bring forward the products of the Loom and the Forge. All kinds of Machinery; every description of Tool and Implement. Articles of Wood, Stone, Metal, Glass, Leather, Wool, Cotton, Silk, Hemp and Flax, specimens of Printing, Statuary, Painting, Daguerreotypes, Engraving and Lithography. Articles of female ingenuity and taste will have a prominent place in the Exhibition.

The Annual Exhibition of the Essex Agricultural Society, and the Essex Institute, will take place in Salem during the week of our Fair. We trust that the Manufacturers of Agricultural Implements will bear this in mind, that we may have a good display of articles in this department. The Superintendent of the Fair will be entrusted with the care and management of every article sent for exhibition, and every facility will be given to show its useful purpose, its ingenious contrivance. Care will be taken to preserve them from injury; trustworthy men will be in attendance day and night; but all articles will be at the risk of the owners. Each contributor will be entitled to admission. Contributors are particularly and earnestly requested to send forward their goods in season. Articles intended for exhibition, will be received from the 1st to the 22d Sept. A check will be given for each article received, which must be presented when they are returned.

All Goods, Machinery, etc., intended for exhibition will be transported over the Railroads leading into the city, free of expense.

Medals of silver, and Diplomas, will be awarded according to the merit of the articles exhibited.—Strict justice shall be adjudged to every contributor. Impartial men, possessing intelligence, and competent knowledge in each department of art, will be selected as judges; those only will be appointed who are not competitors for premiums.

☞All communications in relation to the Fair, should be addressed (post paid,) to the Secretary of the Association.
ALBERT G. BROWNE, President,
jy28 ELEAZER M. DALTON, Secretary.

STEAM BOILER EXPLOSIONS.

THE subscriber having been appointed sole agent for Faber's Magnetic Water Guage, is now ready to supply the trade and individuals with this celebrated Instrument. Besides the great safety from explosions, resulting from its use, it is a thorough check against careless stoking and feeding. In marine engines it will regulate the exact quantity required in the "blow-off." Pamphlets containing full information can be had free on application to the Agent, JOSEPH P. PIRSSON,
j14 tf Civil Engineer, 5 Wall st. New York.

NOTICE.

☞The Second Exhibition of the Maryland Institute for the Mechanic Arts, will be held at Washington Hall, in the City of Baltimore, from Thursday, 27th of September. to 13th October, inclusive. Machines, models, or goods sent to the address of H. Hazelhurst, Corresponding Ssecretary of the Institute, (expense paid) will be met with immediate attention, and every facility used to exhibit the same to the best advantage. j16 4m

S. C. HILLS, No. 43 Fulton st., has constantly for sale—

Steam Engine 3 to 20 horse power, at from $200 to $1250—good horizontal engines—deliverable here or in Philadelphia.

Steam Boilers for the same, say Bentley's patent, or common cylinder, at lowest prices.

Engine Lathes 5 feet $170 : 7 feet $180 ; 10 feet $200 each, with gear for cutting screws, $45 additional.

Iron Planing Machines, to work by hand $100.—Also Hand Lathes, Drills, &c.

The above Machinery will be warranted. Letters must be post paid. a11 8t

FOREIGN PATENTS.

PATENTS procured in Great Britain and her colonies, also France, Belgium, Holland, &c. &c. with certainty and dispatch through special and responsible agents established, by, and connected only with this establishment. Pamphlets containing a synopsis of Foreign Patent Laws, and information can be had gratis on application.
JOSEPH P. PIRSSON, Civil Engineer,
j14 tf Offices 5 Wall st. New York.

SUPERIOR TURNING LATHES.

JAMES STEWART, 15 Canal-st. and 106 Elm-st. is constantly manufacturing and has now on hand between 50 and 60 superior lathes of the following descriptions and at reasonable prices, namely:
Dentist's Lathes, very highly finished.
" " common,
Brass and Wood Turner's Lathes.
Jeweller's and Pencil-case maker's very superior.
J. STEWART is also authorized to act as agent for the sale of the celebrated Lathes manufactured by James T. Perkins of Hudson, of large size and at prices from $250 to $800. A specimen of this description may be seen at his factory as above.
j27 tf

BRITISH PATENTS.
MESSRS. ROBERTSON AND CO.,
PATENT SOLICITORS.

(Of which Firm Mr. J. C. Robertson, the Editor of the Mechanics Magazine from its commencement in 1833, is principal partner,) undertake
The Procuration of Patents.
For England, Scotland, Ireland, and all other European Countries, and the transaction, generally all business relating to patents.

Instructions to Inventors can be had gratis, on applying to Mr. THOMAS PROSSER, 28 Platt Street New York; as also the necessary forms of Petition and Declaration for British Patents.
PATENT OFFICE
m1 tf 166 Fleet Street, London.

Z. C. Robbins,
Consulting Engineer and Counsellor for Patentees.
Office on F street, opposite Patent Office, Washington, D.C. j20 tf

Johnson's Improved Shingle Machine.

THE Subscriber having received Letters Patent for an improvement in the Shingle Machine, is now ready to furnish them at short notice, and he would request all those who want a good machine for sawing shingles, to call on him and examine the improvements he has made, as one eighth more shingles can be sawed in the same given time than by any other machine now in use. Manufactured at Augusta, Me. and Albany, N. Y. J. G. JOHNSON.
Augusta, Maine, Oct. 28, 1848. o28 1y
☞Messrs. Norcross & Co. No. 60 Nassau st. New York, are Agents for the sale of my Shingle Machines.

TO ENGRAVERS and Lithographers.—For sale a new and improved Ruling Machine, suitable for the finest kind of parallel ruling—wave lines and medallion work, price $180: apply post paid to S. C. HILLS, general agent for the sale of all kinds of machinery at 43 Fulton street. 51 1*

Lap welded Wrought Iron Tubes
FOR TUBULAR BOILERS,
From 1 1-2 to 8 inches diameter.

THESE are the only Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers. THOMAS PROSSER, Patentee,
m1 28 Platt street, New York.

TO INVENTORS.

THE Subscriber begs leave to inform inventors and others that he manufactures working models of machinery &c. in a neat workmanlike manner. Patterns of every description made for Castings.—Scroll Sawing neatly executed. Mathematical and Nautical Instrument Cases of every description.
JOSEPH PECKOVER, 240 Water st. N. Y.
j30 3m* Between Beekman st. and Peck Slip.

MARDEN'S IMPROVED BALANCE CURTAIN FIXTURES.—Patented Oct. 1848.

FOR Sale wholesale, by J. A. D. Worcester, No. 43 Main st., near the City Square, and by the subscriber, GEORGE H MARDEN
j9 3m* Charlestown Mass.

PATENT AGENCY.

SAMUEL C. HILLS, No. 43 Fulton stre .N. Y Patent Agent and Agent for the sa of Patent Goods and Patent Rights—still continue to aid and assist inventors in procuring Patents and selling Rights. Charges moderate. Application per mail must be post paid. m26 tf

HITTINGER & COOK.

BLACKSMITHS, Shipsmiths, and Machinists.—Fence and Balustrade Work. All kinds of Ice Tools constantly on hand. Ice and Express Wagons built to order. Also, Trucks and Carts, all kinds of Railroad Work, Mill Work, Shafting, &c.
Chamber st, near the Square, Charlestown, Mass.
j9 3m*

FAY & GULICK,
Designers and Engravers on Wood, No. 80 Nassau street, Room No. 25. m12 tf

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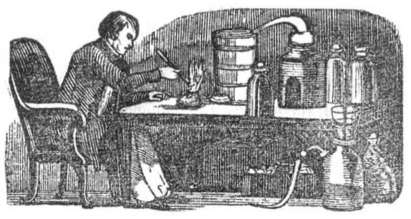


Emanation of Light from various Solid and Fluid Substances, and Animal Matter.

The emission of light from the glow-worm is a fact with which every one is acquainted. A similar effect is known to be produced by several animal substances in a state of decomposition: and from decayed wood is experienced a like luminous appearance. Persons who have witnessed the beautiful phosphorescent effects of the sea, in a dark night, must likewise have been forcibly struck with the radiations of so singular a phenomenon. Such peculiarities in nature cannot be supposed to have escaped the notice of the prying philosopher. Newton, and other eminent philosophers conceived the sun to be a vast body of fire: but the more improved instruments of Bode, Herschel, Schroeter, and other modern astronomers, have contributed to determine that the solar mass is opaque; and these opinions are strongly confirmed by the results of a long course of experiments made by Arago on the emission of light from bodies actually opaque, and which promise to solve many difficulties as to the physical constitution of the sun.

Ingredients of the Principal Varieties of Potash of Commerce.

Po'ash of America:—857 potash, 154 sulphate of potash, 20 muriate of potash, 2 insoluble residue, 119 carbonate acid and water.

Potash of Russia:—772 potash, 65 sulphate of potash, 5 muriate of potash, 56 insoluble residue, 214 carbonate acid and water.

American Pearlash:—754 potash, 80 sulphate of potash, 4 muriate of potash, 6 insoluble residue, 308 carbonate acid and water.

Potash of Treves:—720 potash, 165 sulphate of potash, 44 muriate of potash, 24 insoluble residue, 199 carbonate acid and water.

Potash of Dantzic:—603 potash, 152 sulphate of potash, 14 muriate of potash, 79 insoluble residue, 304 carbonate acid and water.

Potash of Vosges:—444 potash, 148 sulphate of potash, 510 muriate of potash, 34 insoluble residue, 304 carbonate acid and water.

Transit of Venus and Mercury.

The last transit of Venus over the Sun's disc happened on the 3d of June, 1769; the next will be on the 8th of December, 1874. The times of the transits for 1000 years to come may be found by adding successively the following numbers, commencing at the year 1769: 105, 8, 122, 8, 105, 8, 122, 8, 105, 8, 122, 8, 105, 8 122, 8, 105, 8, 122, 8. On the 14th of June, 2976, a transit will occur, in which the nearest approach of the centers of the planets will be 45 sec. N. The transits of this planet are among the most interesting phenomena in astronomy, not only from the rarity of their occurrence, but from the important determinations to which they lead.

The last transit of Mercury over the sun's disc happened on the 9th of November, 1848; the next will take place on the 11th of November, 1861.

The transits of Venus and Mercury were first predicted by the celebrated Kepler.

Envy.

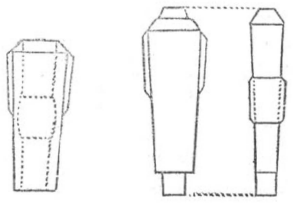
The envious man is in pain upon all occasions which ought to give him pleasure. The relish of his life is inverted; and the object which administer the highest satisfaction to those who are exempt from this passion, give the quickest pangs to those who are subject to it All the perfections of their fellow creatures are odious. Youth, beauty, valour, and wisdom are provocations of their displeasure. What a wretched and apostate state is this; to be offended with excellence, and to hate a man because we approve him! The condition of the envious man is emphatically miserable! He is not only incapable of rejoicing in another man's merit or success, but lives in a world wherein all mankind are in a plot against his uiet, by studying their own happiness and advantage.

Iron Moulding.

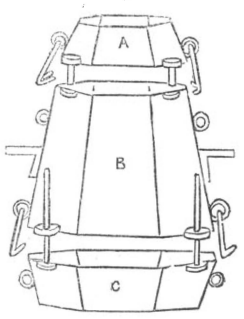
Continued from page 400.

Many improvements in moulding are stated to have been discovered within the past two years. A gentleman of Baltimore is now in England to secure a patent for a new plan of moulding. A number of papers have noticed it, but all of them have given wrong descrip tions. When the foreign patent is secured, in all likelihood we will be able to give a full description of it. In 1846 a very valuable improvement was made in pipe casting by a Mr. D. Stewart, of Montrose, North Britain. The improvement consisted in the machinery for forming the moulds, which saved a great deal of labor in running the sand, but the American invention will, from what we have heard about it, soon supercede it.

In our last we described the mode of moulding flat thin iron work, such as stone plates and work of that kind. The accompanying engravings represent another kind of work, which requires three boxes for the moulding, and the article to describe it fully will be continued to, and finished with, our next number, which completes this volume.



This figure represents a bush for cart wheels —the dotted lines showing the interior tapered hole, through which the axle passes. These bushes are cast in pairs, and the cores for them are cast iron pins of the form of the axle. These core pins are turned and polished to make the interior of the bush smooth, The pattern of the bush is solid, and it has a core print on each end to steady the core, as shown in the second figure of the above cut, and the third figure shows the core extended at the ends, in correspondence with the core prints. In the interior, by the dotted lines, there is represented a chamber to contain the grease or lucubrating material. To form this chamber, a thickness of sand is wrapped round the core pin, which allows it to be driven out when cast. The box to cast the bush being made of three parts, the length of the middle part is made the same as that of the bushes between the small end and the tops of the feathers, and the parts are octagonal, as represented by the following cut.



A is the top, B the middle, and C the bottom. To mould the *pattern*, a flat board is laid down and made perfectly level; upon this board a pair of bush patterns are set down on their small ends, the points passing through two holes made in the said board to keep the pattern steady. The box, B, is inverted and laid down over them, and then filled with sand, which is rammed about the pattern level, with the tops of the feathers, represented in the first figure. The box, C, is now fixed on and rammed with the sand, which, for a fuller description and better illustration, we will delay to the next number.

Hadley Falls.

The Hadley Falls Company, which has a larger Capital than any other Cotton Manufacturing Company in the U. States, is now building the largest dam in America, being 1,017 feet long, and 30 feet high. The water-power is estimated capable of driving 1,200, 000 spindles, with the preparatory and finishing machinery, being more than twice the power in Lowell. One mill is now up and they are getting the machinery into it.—The foundation of the large-machine shop, 443 feet long, is laid, and the building will be completed this season. These works are situated on the Connecticut River, in Massachusetts.

Washing Sheep at Alcruth, in Hungary.

The process of washing is done under the roof, and, accordingly, no sudden showers or rainy weather can interfere with it. Before the shower bath is administered to the sheep, their dirt or pitch has to be dissolved or loosened. For this purpose a soaking vat is put up, which is covered and well put together, of strong planks or boards. It is filled with hot water equal to 84 degrees Fahrenheit; the sheep are then placed in two lines, and constantly handled until the yolk and dirt are dissolved, which ordinary takes from fifteen to twenty minutes. The solvent effects of the hot water is increased by adding a few pounds of potash, and also by the lie arising from the natural oily matter of the wool. The sheep, after being well soaked, are placed under shelter, where they have to wait their turn of the shower bath, in order that the animal, now, too much heated, may not pass immediately from the hot soaking vat into the shower bath, this being from sixty-one to sixty-three degrees Fahrenheit. The water is let upon the sheep through a hose, with a strainer upon the end. It falls with considerable velocity, and is brought to bear upon all parts of the sheep until the wool is of a snowy whiteness. The sheep are then driven to a warm, dry shelter, and shorn as soon as the wool is dry, generally about the sixth day. On an average, forty sheep are thus washed in an hour.

African Mode of Cooking an Ostrich's Egg.

A small hole, the size of a finger, is very dexterously made, and having cut a forked stick from the bushes, they introduce it into the egg, by pressing the two prongs close together; then by twirling the ends of the stick between the palms of the hands, for a short time, they completely mix the yolk and the white; setting it upon the fire, they continue frequently to turn the stick, until the inside has acquired the proper consistence of a boiled egg. This method recommends itself to a traveller by its expedition, cleanliness, and simplicity; and by requiring neither pot nor water; the shell answering perfectly the purpose of the first, and the liquid nature of its contents that of the other. Notwithstanding the enormous size of one of these eggs, being fully equal to twenty-four of our domestic hen, the Hottentots commonly eat a whole one at a time.

First Towns in America.

It will seem curious to those who are not aware of the fact, that the first towns built by Europeans upon the American continent were St. Augustine, in East Florida, and Santa Fe, the capital of New Mexico. The river Gila was explored before the Mississippi was known and gold was sought in California long ere the first white man had endeavored to find home on the shores of New England. There are doubtless trees standing within the fallen buildings of ancient Panama that had commenced to grow when the sites of Boston and New York were covered with the primeval wilderness.

The Yankee and the Printing Press.

The London Athenæum says—"The Yankee has an admirable trick of carrying a printing press upon his shoulder wherever he goes—he cannot live without his paper. Whether he invades Mexico as a soldier, or enters Grenada as an emigrant, he goes armed with type. If he does nothing but show some of "these dragon's teeth" in the land through which he passes, no small account of good should come of it in time.

Barometer.

Take a pair of scales, in one put a brass pound weight, in the other a pound of dry salt; let there be a shelf or board under the scales to prevent their sinking too low, and when it is inclined to rain the scale with the salt will sink the lowest; when inclined to dry, the scale with the brass weight will weigh up the salt.

Of all the most healthy exercises for male or female, those on foot are certainly the best, because the most natural.

A society in New England has collected a fund for reprinting the works of the New England Fathers; the first volumes will embrace the works of the famous Dr. Bellamy.

Decorative Art.

The London Magazine of Science tells us that Miss Wallace, a lady of fortune, has recently discovered a mode of gilding and coloring the interior of tubes of glass, which when so prepared, form a most magnificent beading for the decoration of rooms. It is also applied to the framing of pictures with great success and in a variety of ways, in connection with decorative art, at once novel and attractive. Several specimens of this beautiful invention are now exhibited at the Society of Arts, Adelphi.

LITERARY NOTICES.

The "Pathfinder Railway Guide" is the title of a very useful monthly publication, containing tables of the hours of departure from each station, and the distances and fares on all the railway lines in New England with a complete railway map. This work is issued monthly by George Snow & Co. Boston. Can be had at the Pathfinder office, this city.

The "Pictorial National Library" for September, has been received from the publisher, Wm. Simonds, Boston It contains a good likeness and biography of Levi Woodbury, the distinguished judge, besides an extra amount of spirited engravings, and useful reading. We could do without many publications received by us much better than we could this. Published in monthly numbers, at $2 per annum.

NEW PROSPECTUS

OF THE

SCIENTIFIC AMERICAN!

TO INVENTORS, MECHANICS AND ARTIZANS.

The Publishers of the SCIENTIFIC AMERICAN in returning their thanks to the community for the liberal support and encouragement which has been extended to them during the past four years, would respectfully give notice that the 1st number of Volumn 5, will be issued on the 22d of September, affording a favorable opportunity for all to subscribe, who may wish to avail themselves of the valuable information always found in its columns. The new volume will be commenced with new type, printed on extra fine paper, manufactured expressly for this publication, and embelished with a chaste and elegant border. It will be published as heretofore in quarto form, thus affording, at the end of the year, a BEAUTIFUL BOOK of Over 400 Pages, containing between 5 and 600 ORIGINAL ENGRAVINGS of NEW INVENTIONS, described by letters of reference, besides a great amount of reading matter, valuable to every man in the country,

An increased amount of care and expense will be bestowed upon this Volume, to render it more fully what it has been termed, "The best Mechanical Paper in the World." Its columns, as usual, will be filled with the most reliable and correct information in regard to the progress of SCIENTIFIC and MECHANICAL Improvements, CHEMISTRY, ARCHITECTURE, BOTANY, MANUFACTURES, RAIL ROAD Intelligence, and the WEEKLY LIST OF PATENTS, prepared expressly for this Journal at the Patent Office, Washington.

As an evidence of the estimation in which this publication is held by the Scientific and Mechanical portion of the community, it is only only necessary to state, that its circulation has increased within the last three years to upwards of 10,000 copies, already exceeding the united circulation of all the Mechanical and Scientific publications in this country, and the largest of any single one in the world.

The information obtained from the Scientific American can always be relied upon as being correct: and we shall, as usual, aim to elevate the interests of our industrious mechanics, and also to assist them in their labors, by sound advice and practical instruction.

TERMS:—Two dollars a year in advance; or, if desired, one dollar in advance, and the remainder in six months.

All Letters must be Post Paid and directed to

MUNN & CO.,
Publishers of the Scientific American,
128 Fulton street, New York.

N. B.—Patents secured and mechanical drawings executed on the most reasonable terms at the Scientific American office.

INDUCEMENTS FOR CLUBBING.

Any person who will send us four subscribers for six months, at our regular rates, shall be entitled to one copy for the same length of time; or we will furnish—

10	copies for	6	months	$8
10	"	12	"	$15
15	"	12	"	$22
20	"	12	"	$28

Southern and Western Money taken at par for subscriptions. Or Post Office Stamps taken at their full value.

N. B —Subscribers will bear in mind that we employ no Agents to travel on our account; a list of our local agents will be found in another column—all of whom are duly authorized to act as such, and none other.

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